- Page 4-116, Alternative B. A better citation for the discussion of vertebrate species in prairie dog towns is *Campbell III, T.M., and T.W. Clark. 1980. Colony characteristics and vertebrate associates of white-tailed and black-tailed prairie dogs in Wyoming. Am. Midl. Nat. 105:269-276.* In addition, not all references here are found in the Literature Cited section.

Appendix B

- Page B-3. Mention is made of mitigation measures related to bald eagle roosts. What is the definition of a roost that is used here? The MBEWG (1994) document glossary should be consulted to find the definition of different kinds of roosts.

Aquatic Resources:

- Page 4-124, 3rd paragraph. Suggest changing first sentence, which starts "Several examples illustrate the effects..." to "Several environmental analyses have tried to predict the effects..." This change is recommended because these documents simply guess at what the effects may be; time will be the ultimate judge.
- Page 4-125, 3rd paragraph. Suggest adding a sentence on to the end of the paragraph: "If holding pits or reservoirs leak into underlying aquifers, which eventually discharge at some distant point to surface waters, then there will be water quality impacts to surface waters."
- Page 4-125, 4th paragraph. The warning about groundwater contamination of surface waters needs to be made in this paragraph, and the best place may be as a replacement for the second to last sentence in this paragraph which says "However, there would be no effect on stream flow volume or salinity."
- Page 4-126, 4th paragraph. The text in this paragraph is based in part on our previous comments. FWP suggests additional text however, to clarify the value of this model. After the first sentence, FWP suggests changing the paragraph to read: "Mount et al. (1997) developed a model which predicts the toxicity of water based on the concentrations of individual major ions. Their work revealed that significant toxicity is related to elevated levels of potassium, chloride, magnesium, sulfate and bicarbonate. The Mount model would predict that the produced water from the CX Ranch wells could be lethal to fathead minnows, based primarily on the toxicity associated with the bicarbonate ion. Once the water is discharged to the Tongue River, the dilution would be such that there would be no increase in toxicity to fish in the river under normal flow conditions. However, if there was no or little dilution of this discharge by either flowing or standing river water, it could be toxic to fish and aquatic invertebrates."
- Page 4-127, paragraph under Conclusions. Midway through the paragraph, there are some calculations regarding the effect of dilution from the Tongue River on saline production water. These calculations describe worst-case conditions and assume that the Tongue River would have 39 cfs. This should be changed to reflect the real situation. On 8/12/01, the Tongue River at the State Line was at 12 cfs, and has been under 20 cfs for the at least the period 8/11 to 8/17.
- Page 4-128, 5th paragraph. This paragraph should also mention that there will be the potential for streams and springs drying up as a result of lowered groundwater levels.

- Page 4-128, last paragraph. FWP suggests changes to the following sentence (old text crossed out, new text in bold): "Even though few impacts on aquatic resources are projected under Alternative B, data on fish species present, fisheries management policies, and fisheries resource values would be used to identify those watersheds and drainages that ~~are probably most sensitive~~ **have the highest value, and are therefore in a position to be degraded the most due** to the effects of CBM development and should be monitored closely during CBM activities." This change is recommended because these criteria do not really measure the sensitivity of these fish communities, they are more value-based.
- Page 4-130, second paragraph. The second to last sentence states that the effects of water-quality impacts on aquatic resources will be within "the range of acceptable limitations stipulated under the various MPDES permits..." It should be noted that there are no aquatic life criteria to regulate the discharge of the major ions in production water. A further issue is that research shows (i.e. Mount et al 1997) that the ions act together to confer a level of toxicity to fish that is greater than the toxicity of the individual ions. Therefore, there is no threshold value for these ions that can be measured against when authorizing discharge permits. Individual permits can be held to nondegradation standards, which will allow for a marginal increase in the concentration of ions in the receiving waters. However, the combined effects of 10,000-20,000 well discharges may be detrimental to aquatic life, even though individual discharge permits are legal and within nondegradation limits. This means that in Alternative C, there is risk to aquatic life from degraded water quality, although this risk is unquantified and unknown.

Chapter 4—Comparison Table

Alternative B

- Aquatic Resources: 1) The bullet which describes the drainages most sensitive to CBM development needs to be more specific. What are the beginning points for the "Lower Tongue" and "Lower Bighorn?" What are the beginning and endpoints for the "Upper Tongue?" 2) A bullet should be added which notes that aquifer drawdowns could lead to drying up stream channels which are currently used for fish spawning and rearing.

Alternative C

- Aquatic Resources: A bullet should be added which states that elevated salinity in surface waters could occur if impounded production water seeps into the ground, down to aquifers, and then moves laterally to places where it discharges to surface water.

EXHIBIT 3

Records/13
EPA

EPA Region 8 comments on the draft Chapter 5, Consultation and Coordination, received from BLM dated July 26, 2002

Overall comments

There are some fundamental problems with the proposed responses presented in Chapter 5. While there are two concurrent processes for the lead and cooperating agencies working together that are ongoing, these processes are inconsistent and are leading to different outcomes.

1) The collaborative process between BLM/EPA/Montana/Wyoming on water quality and air quality is not yet completed. It is likely our collaborative process will develop new analysis and identify impacts not contained in either DEIS and perhaps have a bearing on the preferred alternative. At the July 10-11 meetings, BLM also agreed to postpone their decision on a supplemental or revised EIS until after this collaborative process is completed.

2) However, the Chapter 5 responses to these same concerns does not recognize or leave room for the results from the collaborative process.

It is suggested that the response to comments wait until the collaborative process is completed to allow reflection of any results. The comments marked with 3 asterisks (***) indicates a response that is not complete, accurate or consistent with the collaborative process

Second, neither EPA's cover letter nor it's detailed comment letter are summarized. For example even EPA's key concerns are not summarized including EPA's recommendation for a watershed management framework, EPA's rating of the EIS, nor EPA's suggestions for a revised or supplemental EIS under NEPA. There is no summary of EPA's detailed comments either. Under the provisions of 40 CFR Section 1503.4 regarding response to comments, lead agencies can publish summaries of substantive comments where the response is voluminous as this case. However, Chapter 5 does not include a summary of EPA's comments.

We suggest the way to assure that EPA's and other governmental agencies' comments are summarized is to print a complete copy of those comments letters. We realize that due to the volume of comments received, that not all comments would be printed. However, the Final EIS should publish the comments from the cooperating agencies and any other governmental agency, rather than a summary of regulatory or independent agency comments. Due to the volume of comments from other parties, a summary of substantive comments for parties other than governmental entities is appropriate under Section 1503.4 provisions. However, the comment summaries thus far provided paraphrase and combine unconnected issues in such a generalized manner that the intent of this section of the CEQ regulations is not adequately met.

An index linking the response to the origin of a comment is missing. Most of BLM's Final EISs respond to comments using a method that links a response to the originator of the comment.

EPA Region 8 staff have the following comments on selected summaries and responses shown in *italics.*

Alternatives and Other Management Concerns

Substantive Comments

3. Agencies need to develop an alternative for phased-in development.

3. Response: Phased-in development is already part of the reasonable foreseeable development scenario that the preferred alternative analysis is based upon (see Figure MIN-4 in the Minerals Appendix). It is reasonable to assume phased-in development for Montana as there is no infrastructure in place

Organizations that requested consideration of a phased alternative were requesting consideration by BLM and the State of phasing their decisions in a manner that obligated the producers to either pace their development to avoid boom and bust cycles or for producers to move across the production zone to allow for water reinjection into previously produced zones. The response is unresponsive to that substantive comment since it simply notes that industrial activities may be incrementally be constructed in order to complete necessary infrastructure.

5. The nine studies omitted from the DEIS are critical to understanding the impacts of coal bed methane. These studies must be made available for public review and comment. It is vital that development be postponed until all studies necessary for the analysis are completed.

5. Response: BLM is not required to make studies available for public review and comment. The Ethnographic Study, Air Modeling, 3-D Groundwater Model for Hanging Woman and the tribal reports from the Crow and Northern Cheyenne tribes are incorporated by reference into the FEIS. The remaining studies will not be available for incorporation into the FEIS but will be considered (if available) prior to issuing the ROD. When information from those studies and any other future studies becomes available, the RMPs will be reviewed to determine if the new information warrants a change to the plan.

Incorporation by reference pursuant to 40 CFR 1502.2 is limited to material that would "... cut down on bulk without impeding agency and public review of the action" (emphasis added.) Incorporation by reference in a Final EIS would result in this information not being available for public review in a draft stage. In May, 2002, EPA addressed the issue of whether the first four of the mentioned studies could have a bearing on the preferred alternative or the impacts. For example, the draft information now available from the air modeling indicates significant impacts could result from the proposed action when considered with other cumulative actions. New information provided to EPA last month indicates the potential for NO2 increments being exceeded in the Class I area of the Northern Cheyenne Tribe and the potential for PM10 NAAQS being exceeded near the Spring Creek Mine in the southern portion of the Billings RMP area and potential visibility impairments to every sensitive area analyzed. (See email from Scott Archer, BLM, to Douglas Latimer, EPA, July 22, 2002.) An air quality technical team is evaluating this new information and this information should be summarized in Chapter 4 and an explanation provided by the co-lead agency and EPA regarding the significance of potentially exceeding these threshold values for air quality.

10. MEPA disallows the revision, the issuance of supplemental information or the drafting of additional chapters (intended to "fix" a faulty document after the fact" for inclusion in a final EIS).

10. Response: No significant changes have been made to the DEIS. Changes include better clarification of the preferred alternative and accompanying analyses, but no changes to the preferred alternative have been made.

There are ongoing collaborative efforts with BLM in Wyoming and Montana with EPA to improve the water quality and air quality analyses. BLM is also in a process to provide a biological assessment in cooperation with the Fish and Wildlife Service. BLM

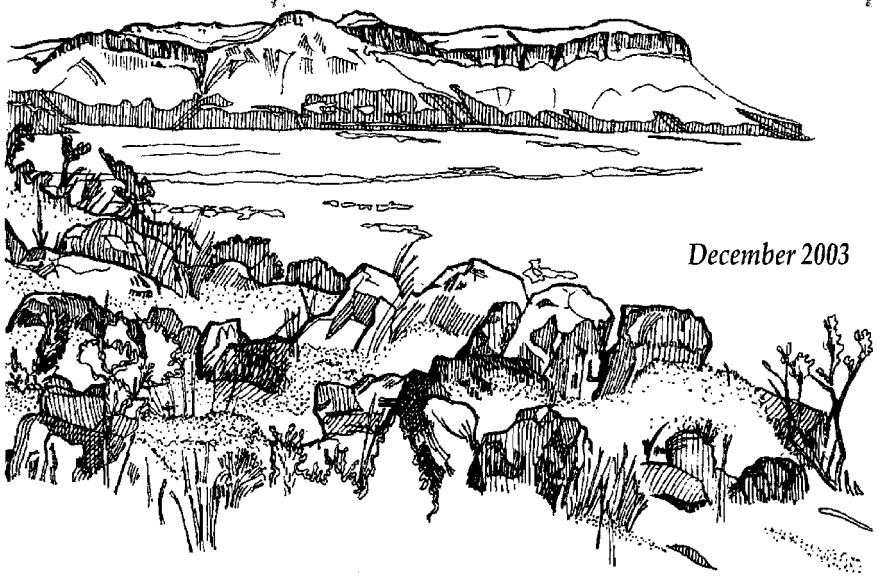
EXHIBIT 4

Proposed Resource Management Plan Amendment and Final Environmental Impact Statement for Federal Fluid Minerals Leasing and Development in Sierra and Otero Counties

Volume I

United States Department of the Interior
Bureau of Land Management

LAS CRUCES FIELD OFFICE



December 2003

TABLE 2-11
MANAGEMENT GUIDANCE IN DECISION AREA BY ALTERNATIVE
(approximate acres)

Constraints	No-Action Alternative	Proposed Plan (Alternative A Modified)	Alternative B
Closed to Leasing			
Nondiscretionary closure	55,823	55,823	55,823
Discretionary closure	14,838	30,097	281,149
Total closed to leasing	*70,661*	*85,920*	*336,972*
Open to Leasing			
No surface occupancy	9,911	40,526	184,320
Controlled surface use	0	519,925	892,262
Standard lease terms and conditions	1,972,426	1,406,625	639,445
Total open to leasing	*1,982,337*	*1,967,076*	*1,716,027*

SOURCE: Bureau of Land Management database 1999

No-Action Alternative

Under the No-action Alternative, fluid minerals leasing and development would continue under existing management **plans, policies, and decisions, some of which are outdated and not in compliance with current program direction. Lease issuance would continue to be considered on a case-by-case basis; that is, each lease application would have to be reviewed and evaluated comprehensively for compliance with NEPA. Once a lease is issued, BLM would continue to implement primarily standard lease terms and conditions to conduct operations in a manner that would minimize impacts on resources, land uses, and users.** A substantial amount of land open to leasing could be leased with standard lease terms and conditions—about **96** percent. Approximately 14,838 acres (less than 1 percent) are discretionarily closed to leasing. Less than 1 percent could be leased with a stipulation of no surface occupancy. Stipulations to control surface use would not be implemented. **At the time when each APD is reviewed, mitigating measures that provide environmental protection (but do not impact the ability to develop the lease) would be applied in the form of conditions of approval (as described in Section 1.3.9, Section 1.5 [Table 1-2], and Appendix B). The operator would be required to conform to the prescribed conditions of approval attached to the approved APD. Under this alternative**, industry would have the ability to achieve the RFD. **For the majority of resource concerns, potential impacts would be expected to be minimal—protection of the resources would be through existing regulations and policies. However, if a substantial amount of development (the entire RFD) were to occur in an area of sensitive resources (e.g., Nutt and Otero Mesa desert grassland habitat areas, VRM Class II areas), surface-disturbing and disruptive activity could result in significant impacts on that environment.**

Alternative A Modified (BLM's Proposed Plan)

Alternative A Modified (Proposed Plan) **would comply with current management direction by (1) clearly identifying which lands under BLM jurisdiction in the Planning Area would be available for development through leasing and (2) how those available lands would be managed, including constraints in the form of stipulations attached to new leases, where warranted, to protect resource concerns that cannot otherwise be protected by existing regulations and policies. This provides the lease applicant with information, in advance of leasing, regarding the availability of land for leasing and constraints, if any, which would be attached to the lease. Under the Proposed Plan (Map 2-1)**, the amount of land discretionarily closed to leasing would be **30,097** acres (1 percent). The amount of land open to leasing with a stipulation for no

surface occupancy would be **40,526** acres, or about **2** percent. The amount of land open to leasing with stipulations to control surface use would be approximately **519,925** acres (**25** percent). The amount of land that could be leased with standard lease terms and conditions would be **1,406,625** acres (**69** percent).

While this alternative represents an increase in constraints beyond the existing management situation (No-action Alternative), Alternative A **modified** allows for implementing the least restrictive constraints **needed to** provide protection **to resources** while allowing fluid minerals leasing and development to occur. Given the levels of potential for fluid minerals development, the constraints under this alternative are not anticipated to affect the ability to explore for and develop fluid mineral resources and achieve the RFD **in the overall Decision Area. However, in the Nutt and Otero Mesa desert grassland habitat areas (Map 2-1A), the stipulation to control surface use by limiting industry's disturbance to no more than 5 percent of the leasehold at any one time and requiring new lessees to form exploratory units prior to commencing drilling activity (refer to stipulation description in Appendix D), would restrict development activities, but should not preclude the ability to explore for and develop fluid mineral resources and achieve the RFD.** Alternative A **Modified** consolidates the requirements and objectives, which would clarify the leasing process for both industry and BLM, and would streamline the overall NEPA process; **that is, site-specific actions would be tiered to this RMPA/EIS thereby reducing the amount of time required for site-specific NEPA review.**

Alternative B

Alternative B, **which also complies with most of the current management direction**, provides for greater protection of resource concerns. The increase in protection is most evident in the amount of land discretionarily closed, which would increase to approximately **281,149** acres (14 percent) of the Decision Area land. The amount of land open to leasing with a stipulation of no surface occupancy would increase to approximately **184,320** acres (**9** percent). The amount of land open to leasing with stipulations to control surface use would be approximately **892,262** acres (**43** percent). The amount of land that could be leased with standard lease terms and conditions would decrease to approximately **639,445** acres (about 31 percent).

While providing more protection for resource concerns than the No-action Alternative and Alternative A **Modified**, the increased amount of land closed to leasing in Alternative B would limit the spatial area in which to explore for and develop fluid minerals in certain locales. This potentially could reduce the opportunity and/or increase the cost to achieve the RFD estimated for oil and gas.

Also, public lands would be closed in areas of high potential for geothermal resources; however, since most geothermal resources are developed in proximity to population areas (not on public land), it is not anticipated that these discretionary closures would have an effect on the ability to achieve the RFD for geothermal resources.

2.4 PROPOSED PLAN

The Proposed Plan is Alternative A from the Draft RMPA/EIS modified as a result of public input and further analysis. Under the Proposed Plan (Map 2-1), the majority of public land in Sierra and Otero Counties would remain open to leasing. However, in accordance with H-1624-1, BLM has modified the existing management situation as follows: (1) to identify which public lands would be available for leasing and subsequent development, (2) to determine how those available lands would be managed, and (3) to respond to legislative or regulatory requirements and/or management objectives. The Proposed Plan allows for the protection of resource values while sustaining the ability for the fluid minerals industry to achieve the RFD and fulfilling the policy of multiple use and

sustained yield of public lands as directed under FLPMA.

2.4.1 Lands and Access

The majority of existing management direction for lands and access allows leasing with standard lease terms and conditions. Resource concerns that warrant closure to leasing, a stipulation for more protection, or further clarification are described below.

White Sands Missile Range Safety Evacuation Zone, an area adjacent to the western edge of the White Sands Missile Range, may be evacuated on days that missiles are fired. The land is administered by BLM; however, the Department of the Army is responsible for evacuation notification. Therefore, BLM will continue to manage the land as open to leasing with standard lease terms and conditions, but would issue a Lease Notice to lessees informing them of the potential for evacuation (Appendix D, page D-13).

The old Air Force bombing and gunnery range is an area that was used previously as an impact area and subsurface use is prohibited. BLM would manage the land as a nondiscretionary closure to ensure public safety (Appendix D, page D-2).

The area of the Caballo Mountain Communication Site would be managed as open to leasing with standard lease terms and conditions.

R&PP leases and patents would remain open to leasing with a stipulation of no surface occupancy (Appendix D, page D-5).

Public water reserves would be managed as open to leasing with standard lease terms and conditions.

Community Pit 7, a mineral material area managed by BLM for public use, would remain open to leasing with no surface occupancy (Appendix D, page D-6).

The Berrendo Administrative Camp Site would remain open to leasing with a stipulation to control surface use to avoid effects on existing structures and the helipad to protect capital investment (Appendix D, page D-9).

2.4.2 Watersheds and Water Resources

Highly erosive and fragile soils (mapped by Natural Resource Conservation Service as Nickel-Bluepoint, Alamogordo-Gypsum Land-Aztec, Holloman-Gypsum Land-Yessum, and Prelo-Tome-Largo) would remain open to leasing, but with a stipulation to control surface use to maintain productivity and minimize erosion (Appendix D, page D-9).

Riparian/other wetlands/playas would remain open to leasing, but with a stipulation of no surface occupancy within 0.25 mile to minimize impacts on these sensitive areas (Appendix D, page D-6).

The five watershed areas identified and mapped by BLM would remain open to leasing with standard lease terms and conditions.

The six ecological study plots would remain open to leasing with a stipulation of no surface occupancy to protect existing ecological resources in these areas for research and scientific purposes (Appendix D, page D-7).

2.4.3 Wildlife and Special Status Species

The four big game habitat areas identified and mapped by BLM would remain open to leasing with standard lease terms and conditions.

The Nutt and Otero Mesa desert grassland habitat areas would remain open to leasing, but with a stipulation to control surface use by limiting industry's disturbance to no more than 5 percent of the leasehold at any one time and requiring the new lessees to form

exploratory units prior to commencing drilling activity. The purpose is to protect remnant Chihuahuan Desert grassland habitat and associated special status species of wildlife through greater planning of the future oil and gas development (Appendix D, page D-10).

As part of discussions during the Section 7 Consultation effort with the U.S. Fish and Wildlife Service, and because of the uncertainties regarding the future of oil and gas activities and their impact in the Nutt and Otero Mesa grassland areas, BLM decided to withhold leasing in three of the more pristine portions of the grassland habitat. Although the Proposed Plan identifies these areas as being open to leasing with stipulations, the three core habitat areas would be withheld from leasing until the effects are understood better. The three areas are comprised of the Nutt grassland complex (8,094 acres) and two Otero Mesa grassland complexes (11,483 acres and 16,213 acres). A map showing these areas is found in Appendix F on page F-2. As part of BLM's adaptive management, these areas and adjacent grasslands would be re-evaluated at 5-year intervals. During the intervening 5 years, BLM would seek public input into the development of an adaptive management strategy. The strategy would include: the desired outcomes, the resource indicators to be monitored, and how information will be evaluated. A draft of that Adaptive Management Implementation Strategy is found in Appendix F.

Special status species habitats identified by BLM would remain open to leasing, but with a stipulation to control surface use to avoid adverse impacts on individual species and their associated habitats (Appendix D, page D-12).

Habitat suitable for bighorn sheep, identified by BLM, would remain open to leasing with standard lease terms and conditions.

2.4.4 Cultural Resources

Lake Valley Historic Townsite would remain open to leasing, but with a stipulation of no surface occupancy to protect the townsite and schoolhouse, which are subject to existing cultural resource regulations since both are on the State Register of Historic Properties and are eligible for inclusion on the National Register of Historic Places (Appendix D, page D-8).

The protected cultural resource areas of Rattlesnake Hill District, Lone Butte, and Jarilla Mountains would be open to leasing, but with a stipulation of no surface occupancy to protect those cultural resources since they are listed on the State Register of Cultural Properties and/or eligible for inclusion on the National Register of Historic Places (Appendix D, page D-5).

Designated historic trails (i.e., Mormon Battalion, Butterfield, and Jornada del Muerto trails) would remain open to leasing, but with a stipulation to control surface use. No surface-disturbing activities would be allowed within 0.25 mile from each side of the trails for their entire lengths; however, areas along the trail where there is existing disturbance could be used to cross the trails (Appendix D, page D-11).

2.4.5 Recreation and Visual Resources

Tularosa River Recreation Area would remain open to leasing with a stipulation of no surface occupancy (Appendix D, page D-7).

Red Sands ORV area would remain open to leasing with standard lease terms and conditions; however, a Lease Notice would be issued advising the lessee about the intermittent use of this recreation area (Appendix D, page D-13).

VRM Class I areas, which coincide with the six ACECs, would remain discretionarily closed to

leasing to protec
values that have

VRM Class II a
with a stipulatic
protect visual r
(Appendix D, page D-11).

VRM Classes III and IV would remain open to leasing with standard lease terms and conditions.

Cuchillo Mountains Piñon Nut Collection Area would remain open to leasing with standard lease terms and conditions; however, a Lease Notice would be issued advising the lessee that the current use of the stands of piñon pine trees as a public and commercial nut collection area must be maintained (Appendix D, page D-13).

Lake Valley Backcountry Byway would remain open to leasing, but with a stipulation of no surface occupancy in order to protect the scenic resources along the Byway (Appendix D, page D-8). No surface disturbance will be authorized within 0.5 mile of either side of the road. For proposed

ances between 0.5 and 1 mile from
ide of the road, operators also may be
d to provide and implement mitigation
r proposed development activities.

Special Management Areas

The Jornada del Muerto, Brokeoff Mountains, Guadalupe Escarpment, and Sacramento Escarpment WSAs would remain nondiscretionarily closed to leasing to protect the wilderness values of these areas (Appendix D, page D-2).

The six ACECs would remain discretionarily closed to leasing to protect the high-quality resource values of these areas (Appendix D, page D-3).

The eight nominated ACECs would be discretionarily closed to leasing. They have been determined to meet BLM's "relevance and importance" criteria and they will be managed to protect the known and/or potential biological communities in each of these areas until such time as they are evaluated further for designation (Appendix D, page D-4).

modification may be granted when it can be demonstrated that resource values will not be jeopardized and reclamation will be effective in mitigating impacts.

Justification: Surface-disturbing activities in these areas could cause accelerated erosion or increased instability, necessitating the stipulation of controlled surface use. This also will protect the watershed values and ensure minimal effect on the integrity and long-term appearance of the watershed areas, including the scenic quality and opportunities for recreation. Closing the area to leasing or stipulating no surface occupancy is deemed overly restrictive since BLM allows other surface-disturbing activities within the area.

Desert Grassland Habitat

Stipulation: Controlled surface use. The combined unreclaimed and unrevegetated surface disturbance from exploration, drilling, production and other activities associated with lease operations cannot exceed 5 percent of the leasehold(s) at any one time. This limitation applies to all maintenance and operation of producing wells on this lease and any subsequent sublease or other assignments of any type. Surface-disturbing activities would not be authorized on the leasehold until the lessee has formed (or joined an existing) exploratory unit.

Location:

- **Otero Mesa Desert Grassland Area** – Ts. 21-26 S., Rs 10-16 E., NMPM (approximately 104,875 acres)
- **Nutt Desert Grassland Area** – T. 18-19 S., Rs. 05-07 W., NMPM (approximately 16,266 acres)

Objective: To protect the desert grasslands on Otero Mesa and Nutt and the associated threatened or endangered wildlife species

Previous Management: General management guidance

Waiver: None

Exception: None

Modification: May be modified only in the case of temporary surface disturbances that will be substantially unnoticeable within one year of initial disturbance (e.g., geophysical exploration) or in the case of demonstrated need for health or safety. Also may be modified where BLM requires additional surface disturbance to protect grassland or other natural resources.

Justification: The Otero Mesa and Nutt areas contain large blocks of generally undisturbed Chihuahuan Desert grassland habitat that are important to the maintenance of numerous desert grasslands species that inhabit them. A stipulation to control surface use is necessary to manage the amount of disturbance within these remaining areas. The areas in particular are two relatively large blocks of desert grassland habitat remaining in the region and particularly on public land.

EXHIBIT 5

From: Henry, Shane
Sent: Tuesday, August 30, 2005 3:49 PM
To: 'molly'; Randy.hampton@state.co.us; Riggs, Dean; Velarde, Ron; Romatzke, JT; Broderick, John; judi.heart@juno.com; lambert2004@msn.com; jrice@garfieldre2.k12.co.us; msturgeon@rifleco.org; jnaess@rifleco.org; parata@parachutecolorado.com; steve_bennett@blm.gov; Matthews, Vince; Macke, Brian; mneumann@co.rio-blanco.co.us; Engle, Randy; mcdigs@rof.net; malsdorf@garfield-county.com; thoupt@garfield-county.com; jmartin@garfield-county.com; jconnell@blm.gov; kparsons@co.rio-blanco.co.us; odjo39@rof.net; jsn@lklawfirm.com; greg_goodenow@co.blm.gov; mostone@walshenv.com; randyrussell@juno.com; kay_hopkins@blm.gov; Dillon,David

Subject: Roan Plateau - Summary DNR Presentation

Good afternoon - below is the written summary of the presentation the DNR team gave to the Cooperating Agencies on August 16, 2005. Juanita, the only difference with this version is the addition of what we mean by Performance Based Management - just to add some clarification to what was presented. We look forward to working with you all on the details as this process moves forward.

Shane Henry
Assistant Director for Lands/Energy
Colorado Department of Natural Resources
(303) 866-4620

Upper Roan Plateau Planning Area - An Outline for How Natural Gas can be Leased and Developed in a Responsible and Orderly Manner - Federal Unitization.

Since becoming a cooperating agency over two years ago, the Department of Natural Resources (DNR) has considered at great length how the various resources in the Roan Plateau Planning Area could be utilized and protected in a balanced manner. The Roan Plateau is home to a tremendous variety of "resources" - from the large natural gas reserves to the unique wildlife and environmental values and recreation opportunities that abound across this landscape. There are many obvious reasons why the communities and those who know the Roan Plateau care so much for how it will be managed into the future. The DNR team we put together was tasked with taking all these interests into consideration and coming up with a "balanced" State of Colorado comment and recommendation. The team we assembled to do this is comprised of experts from the Division of Wildlife, the Colorado Oil/Gas Conservation Commission, Colorado State Parks/Outdoor Recreation and the Colorado Geological Survey.

From the very beginning of this process the State of Colorado/Department of Natural Resources has stated in our official comments and recommendations that the management plan for the Roan Plateau will require a new way of thinking that creatively looks at how the many important issues raised by local communities and the interested public can be dealt with. We believe it is not only possible, but absolutely necessary for the BLM to consider innovative solutions when deciding how to address some of the more controversial issues - and in this particular case - how to lease and develop the natural gas resource in a responsible and orderly manner.

In investigating whether natural gas development could be conducted in a manner that creates minimal impacts on other resources and the local communities, we identified several goals for how the upper Roan Plateau could be managed. Again, this is the initial outline for how this proposal could work and the DNR team is actively working out the details as we move forward. This is a work in progress, but we believe it at least provides a good starting point for discussion. The main points for consideration are:

- Minimize the amount and location of surface disturbance.
- Stage or cluster drilling activities in ways to minimize impacts on wildlife, watersheds, and other environmental and recreational values.
- Consolidate facilities, pipelines and staging areas.
- Minimize the number of oil& gas operators.
- Concentrate drilling activities in a way that provide for orderly development across the landscape.

The DNR model presents a method for creating an undivided federal unit* that will provide for responsible and orderly development of the natural gas resource. One of the many benefits of this proposal is that all lease stipulations are agreed to upfront (in conjunction with a unit development plan that industry will be required to follow) and are known by all parties throughout the development of the federal unit. By creating an undivided unit upfront - the expectations of industry, local communities and BLM are clear and well understood from the very start. The DNR team believes that this model could take into account and deal with many of the natural gas development concerns that were expressed throughout this planning process. The outline of our model begins with the following points:

1. Simultaneously leasing of the entire upper plateau in blocks that do not exceed the statutorily-mandated, acreage maximum (BLM is limited, by law, to a maximum of 2, 560 acres per lease).

2. Stipulate that all successful bidders will be required to immediately join into an undivided federal unit covering all 34,758 federal acres on the upper plateau. By designating the entire top of the plateau as a single undivided federal unit there will be one operator and as such one set of pipelines, compressor stations, staging grounds, etc.

3. Stipulate that there will be less than 1% total surface disturbance at any one time. Here the concept of Performance Based Management** will be one of the main stipulations agreed to when this undivided federal unit is formed. This idea is based on the understanding that before the unit operator is issued new

permits they will have to show that the total allowed surface disturbance threshold has not been exceeded. Performance Based Management hinges on active monitoring and continual reclamation as gas development is allowed to take place in an orderly fashion across the plateau.

4. Stipulate that development will be confined to ridge tops and as close to existing numbered roads as possible.

5. Stipulate that drilling within the undivided federal unit will be clustered in a manner so as to provide minimal impact on wildlife, watersheds, environmental and recreation values, etc.

6. Stipulate that all NSO, CSU, ACEC, VRM and watershed protection designations will be honored.

7. Stipulate that surface well pad spacing will be no closer than 2,640 feet*** and provide incentive to industry to achieve greater spacing over the life of the plan.

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* Federal units can be divided or undivided. For instance, the Grass Mesa Federal Unit is a **divided** unit that includes both public and private mineral ownership, and was created after leases were being developed with multiple operators. An **undivided** federal unit has only one operator and it provides that all lease holders share equally in the costs and revenues from the beginning and throughout the development of the unit. An undivided unit should be easier to administrate for BLM and it should provide for more orderly development and maximum consolidation of facilities, pipelines, staging areas, etc.

** Performance Based Management (PBM) stipulates the goals and objectives which describe a desired "end product" and the time frame for achieving various resource concerns, such as: reclamation, wildlife habitat, water quality, land health, etc. Meeting the goals and objectives set by the BLM is the responsibility of the operator - as outlined in the "unitization agreement" and in conjunction with the BLM permitting process. For example, PBM's would be developed to provide incentive to: consolidate facilities, minimizing road miles and overall soil disturbance, protect watersheds, protect sensitive species and wildlife habitats, etc. A standardized evaluation and monitoring protocol is an integral component of PBM in order to assess reclamation success of disturbed land. An annual reclamation report will allow BLM to review for compliance with the unitization agreement and the previously agreed to PBM criteria.

*** 2,640 feet is the average distance between wells on 160 acre spacing. However, using distance as the measurement rather than an acreage checkerboard should allow well pads to remain on ridge tops rather than being placed on slopes that might be more environmentally intrusive.

EXHIBIT 6

United States Department of the Interior
Bureau of Land Management

Final

Miles City District

December 1992

OIL and GAS RMP / EIS AMENDMENT

stipulation. An additional 1,841,505 acres are covered by other resource stipulations. This leaves approximately 2,734,664 acres available for leasing with the application of lease terms.

In areas inaccessible to drilling, any oil and gas resources would remain in place and geologic information normally obtained by drilling would not be available. Closing areas to oil and gas leasing would prohibit the identification, exploration and development of oil and gas resources. Knowledge gained by drilling would be foregone and Federal revenues would be lost. Areas without a lease could not be protected from drainage, but the Federal government could be reimbursed if a Compensatory Royalty Agreement could be reached with the offending lessee. Areas closed to leasing could hinder orderly field development.

In this alternative 598 Federal wells are projected for drilling during the next 15 years which would disturb a total of 2,322 acres. Areas disturbed include acres for access roads, well pads, and production facilities.

The impacts in the short and long term, and for production or drainage, are the same as Alternative A.

ALTERNATIVE C

This alternative makes leasing available on 4,629,126 acres in the planning area with 41,093 acres closed to leasing; 861,000 acres leased with No Surface Occupancy, Timing, and Controlled Surface Use stipulations. Approximately 3,768,126 acres would be leased with only lease terms and no stipulations. Impacts from wells drilled, access roads, well pads and production facilities are the same as A.

The impacts in the short and long term, and for production or drainage, are the same as Alternative A.

ALTERNATIVE D

This alternative makes available for leasing 4,610,037 acres in the planning area with 60,182 acres closed to leasing. There are approximately 1,769,760 acres with No Surface Occupancy, Timing, and Controlled Surface Use stipulations. This leaves approximately 2,840,277 acres leased with lease terms only and no stipulations applied. Impacts from wells drilled, access roads, well pads and production facilities are the same as A.

The impacts in the short and long term, and for production or drainage, are the same as Alternative A.

CONCLUSION

Leases issued with lease terms only would provide the fewest restrictions to lease operations and the best opportunities for protection of Federal leases from drainage by offlease wells. Leases issued with stipulations would provide the most restrictions to lease operations, and less protection of Federal leases from drainage by offlease wells. In comparison, lease stipulations could decrease the value of the lease because of more, or greater, restrictions which could result in higher operating costs.

Areas closed to leasing or areas closed to lease operations because of contiguous No Surface Occupancy stipulations would preclude any oil and gas activities, but would not provide the opportunity for protection of drainage; however, reimbursement could occur by execution of a Compensatory Agreement. These same areas also would limit the opportunity to gain subsurface knowledge from drilling.

Coalbed Methane

Anticipated low levels of coalbed methane exploration and development fall within the number of total oil and gas wells projected for the area in the RFD analysis. No significant impacts would occur under any of the four alternatives.

Coal

A No Surface Occupancy stipulation on lands with existing coal leases and approved mine plans requires agreement between affected parties before oil and gas operations can occur. Enforcement of this stipulation would prevent impacts to coal operations until they are completed. No significant impacts would occur under any of the four alternatives.

Other Minerals

Mineral materials and locatable mineral deposits sometimes occur on the same lands as Federally-owned oil and gas. Provisions of the Multiple Mineral Development Act, P.L. 83-585, establish the priority for developing these resources. The enforcement of this statute would eliminate or mitigate any potential impacts from oil and gas development on mineral materials or locatable minerals. Therefore, no significant impacts would occur under any of the four alternatives.

EXHIBIT 7

II. THE RECORD FAILS TO DEMONSTRATE THE REQUISITE "HARD LOOK" AT THE MOST SIGNIFICANT IMPACTS OF CBM DEVELOPMENT.

A. Defendants' Excuses For Failing To Take A Hard Look At Impacts To Groundwater Wells, And Resulting Economic Impacts, Are Without Merit.

WORC demonstrated that BLM violated NEPA by failing to analyze and disclose the impacts of projected CBM development on groundwater wells. WORC Br. at 4-8.[6] BLM attempts to portray this as a battle of the experts. BLM Br. at 30-31. Not so. The problems with the MEIS's groundwater analysis lie not with what it did, but rather with what it did not do. These critical failures to take a hard look at groundwater well impacts are readily evidenced by the Wyoming Final EIS ("WEIS") and record.

First, the WEIS graphically represents the geographic locations of expected coal seam aquifer drawdowns of various depths over various time periods. WEIS at 4-17 to 32, 4-39 to 46. These maps demonstrate that aquifer drawdowns of hundreds of feet, with a maximum of over 800 feet, are anticipated across wide swaths of the Wyoming PRB. *Id.* at 4-23. In contrast, the MEIS fails to even mention, much less depict, the hundreds of feet of drawdown expected in CBM well fields. This was for lack of analysis, not data. By using the numbers of projected CBM wells for each watershed, MEIS 4-63 Table 4-26, and the 3-D Groundwater model utilized to project aquifer drawdowns, AR VII.G.5 at 45, Montana BLM could and should have prepared an analysis similar to that in the Wyoming EIS to depict expected drawdowns in the watersheds

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participated in the administrative process in a manner that sufficed to alert the agency to the issues they subsequently raised in court, *Id.* at 2213-14, here, WORC not only raised the issues being litigated, it backed them up with extensive factual and legal argument in its DEIS Comments and 147-page Protest. This was more than adequate to ensure that "their participation ...alert[ed] the agency to the [parties'] position and contentions, in order to allow the agency to give the issue[s] meaningful consideration." *Public Citizen*, 124 S. Ct. at 2213 (internal quotations omitted)).

of the project area.

Second, Montana BLM, like Wyoming BLM, had at its disposal a database of water wells. MEIS at 3-15; WEIS at 3-35. This data included well depths for all wells listed, as well as the target formation/aquifer for some wells.[7] Whereas Wyoming BLM analyzed its well data to compile an estimate of the number of wells tapping the aquifers that could be impacted by CBM development, WEIS at 3-35, Montana BLM conducted no such analysis and provided no such numbers.[8] Given that both Wyoming and Montana BLM had this data, the WEIS again demonstrates the inadequacy of MEIS's analysis.[9]

Instead of providing these two quantitative analyses as did the WEIS, the MEIS made the general statement that "groundwater levels within coal seam aquifers could be drawn down over large, contiguous areas of the state." MEIS at 4-62. The Ninth Circuit has held that such "'general' statements about 'possible' effects ...do not constitute a 'hard look' absent a justification regarding why more definitive information could not be provided.'" WORC Br. at 5, quoting *Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1213 (9th Cir.

[6] This, despite the fact that the Basin's groundwater "is extremely critical because it provides almost 100 of the domestic water for farmsteads" and "constitut[e]s the largest percentage of dependable stock water." MEIS at 3-32.

[7] Map 3-5 citing "Montana Bureau of Mines & Geology Water Well Database," found in the record at CD05\data\analysis\mbmg\wells.mdb. Within that database is a table entitled "prbwells" that contains 10,571 records, of which 9,463 have an entry in the "TOTAL_DEPT" field and 4,153 have an entry in the "AQUIFER" field.

[8] Marathon misrepresents WORC's arguments regarding well numbers. Marathon at 8-9. WORC demonstrates here and in its Opening that the MEIS, unlike the WEIS, failed to estimate the numbers of water wells that tapped the Fort Union and other coal seams. The data cited by Marathon in Table 4-26 at MEIS 4-63 provides estimates of the number of future CBM wells projected for each watershed, not of existing water wells.

[9] Montana BLM, unlike Wyoming BLM, thus failed to use well data in its possession to establish baseline conditions. Without knowing how many wells tap the potentially affected aquifers in its portion of the Basin, Montana BLM had "simply no way to determine what effect [its actions] will have on the environment." *Half Moon Bay Fishermans' Marketing Ass'n v. Carlucci*, 857 F.2d 505, 510 (9th Cir. 1988).

1998) (citations omitted). Given that the WEIS shows that the MEIS could have provided this "more definitive information," the MEIS's failure to do so violated NEPA.[10]

Last, despite having the information at their disposal, both the MEIS and WEIS failed to provide the most crucial analysis – an estimate of how many water wells would likely be affected by CBM development. By combining a comprehensive analysis of expected drawdowns (such as Wyoming prepared) with a database of wells including their locations and depths, which both BLM offices referenced in their EISs, BLM could have provided these estimates. This failure was no mere fly-speck – this is one of the most important issues surrounding the proposed development.

Given that the agency had the information in its possession to conduct this analysis, there is no excuse for it not doing so.[11] "If it is reasonably possible to analyze the environmental consequences in an EIS for an RMP, the agency is required to perform that analysis." *Kern*, 284 F.3d at 1073. Here, as in *Kern*, the "environmental problem was readily apparent at the time the EIS was prepared" and the EIS "contained enough specifics," namely the database of water wells, projections of expected CBM wells by watershed, and 3-D Groundwater report, "to permit productive analysis" of the expected impacts to groundwater wells throughout the project. *Id.* Thus, BLM's and Marathon's arguments that this analysis would be done in future, site-specific analyses (BLM at 30; Marathon at 10) does not excuse the agency's failure to perform a "coherent and comprehensive up-front environmental analysis" here. *Blue Mountains,* 161 F.3d at 1216; *see also Kern*, 284 F.3d at 1072.

[10] Had BLM prepared a single EIS, *see infra* at 25, this crucial discrepancy between the two states' consideration of groundwater impacts could have been averted.

[11] Montana BLM's failure to analyze groundwater impacts was even more arbitrary because it contradicted the agency's statement a decade prior that a "hydrologic analysis of the RFD area" was necessary." SOF ¶ 28.

The record also demonstrates that the MEIS did not analyze impacts to wells tapping the Lower Hell Creek – Fox Hills aquifers ("Fox Hills aquifers") that underlie the Fort Union coal aquifers.[12] Whereas the consultant's report states that wells tapping these aquifers would not be affected, record evidence contradicts this conclusion. SGI at 12-13 ¶ 145. The MEIS avoids mentioning impacts to Fox Hills water wells, thus providing no look, much less a hard one, at this "important aspect of the problem" of impacts to the Basin's water wells. *Motor Vehicle Mfrs.*, 463 U.S. at 43.

In addition to failing to analyze and disclose direct impacts to water wells, BLM failed to consider cumulative impacts to Montana's groundwater wells caused by "reasonably foreseeable future" CBM development just across the border. 40 C.F.R. § 1508.7.[13] As WORC showed, the discrepancy in project life between Wyoming (10 years) and Montana (20 years) resulted in an underestimate of cumulative impacts from Wyoming development on all resources, including groundwater, because it left a second decade of Wyoming development, and its attendant 30,000

[12] BLM's claim that WORC did not "protest BLM's analysis of impacts to the Lower Hell Creek-Fox Hills formation" is false. BLM Br. at 32. Dr. Bredehoft, in comments attached to WORC's Protest, took issue with the EIS's failure to analyze impacts to that very formation. AR VIII.A.32 at 119-20, 123, 124-25.

[13] BLM's claim that WORC did not exhaust its administrative remedies regarding this issue is likewise false. BLM Br. at 17-18. WORC's Protest explicitly took issue with this failure with respect to groundwater. AR VII.C.4 at 103-104 ("BLM fails to take the final step required and evaluate the cumulative drawdown impacts from Montana development (never described) when combined with the cumulative drawdown impacts from Wyoming development ...."). This more than sufficed to alert the agency to this issue in the Ninth Circuit, which requires only that WORC's Protest, "taken as a whole, provide[] sufficient notice to the [agency] to afford it the opportunity to rectify the violations that the plaintiffs allege." *Native Ecosystems Council v. Dombeck*, 304 F.3d 886, 898-900 (9th Cir. 2002). *See also Idaho Sporting Congress v. Rittenhouse*, 305 F.3d 957, 965 (9th Cir. 2002) ("claimants who bring administrative appeals may try to resolve their difficulties by alerting the decision maker to the problem in general terms, rather than using precise legal formulations"); *Dubois v. U.S. Dept. of Agric.*, 102 F.3d 1273, 1291 (1st Cir. 1996) ("the purpose of public participation regulations is simply 'to provide notice' to the agency, not to 'present technical or precise scientific or legal challenges to specific provisions' of the document in question") (citation omitted).

more "reasonably foreseeable future" CBM wells, out of the analyses. WORC Br. at 18-19; WEIS App. A at 10. This failure defeated the MEIS's ability to take a hard look at cumulative impacts of development on both sides of the border on groundwater aquifers over its 20-year project period, leaving the public, this Court, and indeed the agency to guess as to how far and deep the drawdowns might extend beyond the "100 ft. in coal aquifers 3 miles into Montana" calculated to result from the first decade of Wyoming production. WORC's Statement of Undisputed Facts ("SOF") ¶ 140.

BLM attempts to dodge this clear error in judgment with a promise that Wyoming BLM will undertake a new analysis if it exceeds its 10-year reasonably foreseeable development (RFD) scenario of 51,000 wells. BLM Br. at 16-17. The fact that Wyoming BLM may prepare a new EIS at some point in the future has no bearing on the analysis in the MEIS, which purports to fully consider 20 years. Even if Montana BLM stipulated to prepare a supplemental EIS to consider Wyoming development beyond that projected for year 10, that would still not cure the MEIS's present failure to consider the full extent of Wyoming development that is reasonably foreseeable during the 20-year project period. Given that 81,000 Wyoming wells were "reasonably foreseeable" during the 20-year Montana project period, CEQ's regulations and Ninth Circuit precedent required that BLM consider them in the cumulative impacts analysis. *Muckleshoot Indian Tribe v. U.S. Forest Service*, 177 F.3d 800, 809-810 (9th Cir. 1999) ("The EIS must analyze the combined effects of the actions in sufficient detail to be 'useful to the decisionmaker in deciding whether, or how, to alter the program to lessen cumulative impacts.'") (quoting *City of Carmel-By-The-Sea v. U.S. Dept. of Transp.*, 123 F.3d 1142, 1160 (9th Cir. 1997)).

Had BLM taken a "hard look" and realized how many water wells could be affected, it should have prompted the agency to consider whether the state's water well agreements would mitigate these impacts. BLM asserts it did so, but cites only to the water well agreement itself and attempts to provide just such an assessment in its brief. BLM Br. at 32-33. This is unacceptable. "It is well-established that an agency's action must be upheld, if at all, on the basis articulated by the agency itself." *Motor Vehicle Mfrs.*, 463 U.S. at 50 (citations omitted). BLM's counsel's attempt to provide additional bases for the agency's decision cannot cure the agency's failure to provide a reasonably complete discussion of the water well agreements in the EIS because "[t]he courts may not accept appellate counsel's post-hoc rationalizations for agency action." *Burlington Truck Lines, Inc. v. United States*, 371 U.S. 156, 168 (1962).[14] Nowhere did BLM estimate how effective the water well mitigation measures would be or give a "reasoned explanation as to why such an estimate is not possible." *Neighbors of Cuddy Mountain v. United States Forest Serv.*, 137 F.3d 1372, 1381 (9th Cir.1998). Instead, the MEIS offered only the conclusory statement that the agreements "are expected to facilitate replacement of water lost to the drawdown of groundwater levels within producing coal seam aquifers" MEIS at 4-62 to 63. This "perfunctory description," lacking any supporting "analytical data to support the proposed mitigation measure[]," is not adequate to satisfy NEPA's requirements. *Cuddy Mountain*, 137 F.3d at 1380; *Idaho Sporting Congress*, 137 F.3d at 1151.[15]

[14] Furthermore, BLM's attempts to provide an analysis here, rather than in the EIS, violates NEPA by depriving the public of the opportunity to evaluate this explanation and offer ways of improving the agreements. *State of Cal. v. Block*, 690 F.2d 763, 771 (9th Cir. 1982) ("NEPA requires not merely public notice, but public participation in the evaluation of ... environmental consequences").

[15] *See also Northwest Indian Cemetery Protective Assoc. v. Peterson*, 764 F.2d 581, 588 (9th Cir. 1985), *rev'd on other grounds Lyng v. Northwest Indian Cemetery Protective Assoc.*, 485 U.S. 439 (1988) (NEPA requires agencies to "analyze[] the mitigation measures in detail [and] explain[] how effective the measure would be").

Moreover, even if the Court were to consider BLM's post-hoc explanation, it is contradicted by the record. The MEIS itself questions the efficacy of the water well agreements. SGI ¶ 138. Thus, the record not only fails to support BLM's assumption that these agreements will suffice to "make water rights holder[s] whole" if their wells are in or near CBM fields, ROD at 9, but contradicts it and exposes it as arbitrary. *Motor Veh. Mfrs.*, 463 U.S. at 43.

BLM's post-hoc explanation also ignores "relevant factors" concerning the agreements' efficacy. *Id.* First, BLM failed to consider whether these agreements would protect water well users once CBM development ceases. The 3-D Groundwater report states that aquifer drawdowns will continue long after the 20-year project period, SGI ¶ 138, but the EIS provides no discussion addressing the longevity of the agreements. The Order itself states that mitigation will be limited to "such conditions as the parties mutually agree upon." AR III.G.1 at 5. Thus, it is entirely speculative whether these agreements will suffice to protect water well users given that the playing field will be steeply inclined in favor of the companies and their national and regional law firms in the negotiations producing these conditions.

BLM's other attempts at explanation likewise fall flat. BLM admits that the agreements apply only to water wells within a mile of a CBM field, BLM Br. at 32, potentially excluding many landowners with wells that will be affected by the predicted regional drawdowns in the aquifers. SOF ¶ 141. BLM attempts, post-hoc again, to explain away this limitation by pointing to the provision that automatically extends the water well agreement's range one-half mile beyond an adversely affected well, BLM Br. at 33, but this still fails to address whether such incremental expansions will be able address the predicted regional drawdowns.[16] Given that

[16] For example, a well two miles away from a producing field could go dry, but the owner would have recourse only if "the operator reasonably believes" that the well was impacted by CBM development. AR III.G.1 at 5.

drawdowns will occur miles away from existing fields, neither the MEIS nor BLM's post-hoc analysis provides the necessary analysis of whether wells anywhere beyond a mile away from CBM development would be protected.

In sum, the MEIS, and indeed Defendants' post-hoc analyses, are both afflicted by a "paucity of analytic data to support the [agency's] conclusion that the mitigation measures would be adequate in light of the potential environmental harms." *Nat'l Parks& Conservation Ass'n v. Babbitt*, 241 F.3d 722, 734 (9th Cir. 2001).[17] BLM's failure to consider the extent to which they may not be effective in avoiding or minimizing harms, 40 C.F.R. § 1502.16(d), violated the "requirement that mitigation be discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated." *Robertson,* 490 U.S. at 352.[18]

Last, WORC demonstrated that BLM utterly failed to analyze the economic impacts that the loss of groundwater could have on the Basin's ranchers and farmers. Dr. Bredehoft noted that BLM failed to consider the cost of replacing wells and treating water in its analyses. AR VIII.A.32 at 121-22 (calculating low estimate of $50 million to mitigate loss of 5,000 wells). BLM has not disputed these estimates because it cannot – there is no evidence in the record that the agency ever considered this "important aspect of the problem," *Motor Vehicles*, 463 U.S. at 43.

BLM's response that the EIS's grazing analysis suffices as a substitute is meritless. BLM Br. at 34-35. First, that analysis simply does not address impacts to agriculture. Second, that

[17] The Ninth Circuit went on to note that the Park Service "did not conduct a study of the anticipated effects of the mitigation measures nor did it provide criteria for an ongoing examination of them or for taking any needed corrective action (except for the plan to conduct "studies"). As with the rest of its proposal, it planned to act first and study later." *Nat'l Parks& Conservation Ass'n,* 241 F.3d at 734.

analysis did not consider impacts on ranching due to loss of water wells and springs. SGI at 25 ¶ 207.[19] The grazing analysis, therefore, cannot substitute for and cure the deficiencies of an economic analysis that did not address either the cost of lost groundwater resources or the possible number of lost jobs. WORC Br. at 7-8.[20]

B. BLM Failed To Take A Hard Look At Surface Water Impacts.

The MEIS does not provide the requisite "hard look" at impacts to surface waters because the BLM ignored two "relevant factors." *Marsh*, 490 U.S. 374, 378. First, it erroneously used basin-wide averages as the foundation for its analysis because it failed to consider record evidence demonstrating both that (1) some areas of the Basin produce significantly greater amounts of groundwater than others and (2) initial pumping rates are greater than average production rates. WORC Br. at 9-11. Second, its water quality analysis ignored impacts to ephemeral streams and aquatic life. *Id.* at 11-13.

By using an assumption that more than 7000 wells across the Montana portion of the Basin will produce an average 6.2 gpm/well in year six of the development, BLM Br. at 36, the BLM's analysis understates impacts in those watersheds where the initial discharge rates are

[18] *See also Wilderness Soc'y v. Bosworth*, 118 F. Supp. 2d 1082, 1106-07 (D. Mont. 2000) (reversing and remanding Forest Service EIS in part because mitigation measures were not "assessed for their effectiveness").

[19] BLM's counsel offers the post-hoc rationalization that the grazing analysis failed to consider the effects of groundwater drawdowns because it relied on water well mitigation agreements to prevent these in their entirety. BLM Br. at 34-35 This is nowhere mentioned in the MEIS at 4-101 or 4-47, the citations BLM provides, exposing it as yet attempt by BLM's counsel to patch holes in the EIS with improper post-hoc rationalizations. Moreover, the lack of any analysis of the efficacy (or lack thereof) of this measure exposes BLM's reliance on it as arbitrary and capricious. *Supra* at 7-10.

[20] Whether livestock grazing and petroleum development are compatible is irrelevant. BLM Br. at 34. The issue is whether livestock grazing and CBM development, which produces much different and greater impacts to ground and surface water resources, are compatible.

significantly higher than average and where the average discharge rate per well is also higher than average.[21]

The use of averages is flawed for at least two reasons.[22] First, impacts must be evaluated looking at discharges to specific watersheds, rather than impacts averaged across the entire Basin.[23] BLM's use of basin-wide averages distorts the agency's analysis of the likely impacts in watersheds, like the Powder River, where discharge rates are demonstrated by the record to be higher than average. SOF ¶ 158-61

Second, CBM is developed in PODs of wells that are all drilled and pumped at approximately the same time in order to effectively dewater the coal seams. CD01:03342-43; CD01:03677; CD07:13229; AR VI.D.15 at 1-1. Therefore, most impacts occur at the initial stages of a particular development, when the largest quantities of water are pumped.[24] This use

[21] BLM's claim that WORC did not protest BLM's use of this average for produced water volumes is false. BLM Br. at 35. Dr. Munn, in his expert comments attached to WORC's Protest, took issue with this precise figure. AR VIII.A.32 at 130 ("This rate is closer to 15 gpm (p 3-32) than to the 6.2 gpm stated").

[22] BLM defends the use of averages by simply arguing that the dispute boils down to a quarrel among experts. BLM's expertise, however, does not deserve deference where, as here, the analysis ignores "relevant factors" and fails to articulate a "rational connection between the facts found and the choice made," *Motor Vehicle Mfrs.*, 463 U.S. at 43. On the contrary, BLM's use of assumptions that were contrary to evidence in the record demonstrating the arbitrariness of its use of the 6.2 gpm/well average requires setting aside the EIS. *See, e.g., Appalachian Power Co. v. EPA*, 249 F.3d 1032, 1053-55 (D.C. Cir. 2001); *Columbia Falls Aluminum Co. v. EPA*, 139 F.3d 914, 922-23 (D.C. Cir. 1998); *Chemical Manufacturers Ass'n v. EPA*, 28 F.3d 1259, 1264-66 (D.C. Cir. 1994); *Edison Electric Institute v. U.S. EPA*, 2 F.3d 438, 446-47 (D.C. Cir. 1993)(all setting aside EISs due to EPA's faulty modeling and/or analysis).

[23] For example, if water discharge rates are 2 gpm/well in one watershed and 10 gpm/well in another, the impacts in the different watersheds would likely differ dramatically despite there being a 6 gpm/well average.

[24] It is at this stage that the produced water must be contained, handled, or treated in order to prevent its escaping onto the surface and/or being dumped into surface waters.

of averages results in a failure to address the impacts of development in specific watersheds and the management of water during the initial stages of development.[25]

While a later analysis of the impacts of specific development proposals, along with MPDES permits and Water Management Plans, may more accurately identify the production rates, this deferral of analysis to a later date violates NEPA. Rather, the agency is required to take a "hard look" at the issues now, before the agency has authorized the anticipated development. *Kern*, 284 F.3d at 1072.

BLM's water quality analysis also admittedly did not focus on impacts to the many ephemeral drainages that crisscross the Basin or on impacts to aquatic life. Rather, BLM focused on pollutants most affecting irrigation water (namely, SAR and EC values) and focused on the main streams in the Basin. BLM dismisses the need to analyze the impacts on smaller drainages (where there may be significantly less dilution of CBM water) or impacts of other pollutants because of the protections allegedly afforded by the MPDES permitting process and site-specific Water Management Plans. The MEIS, however, contains no analysis of the likelihood that the MPDES permits and the Water Management Plan will effectively prevent watershed degradation in violation of NEPA.[26] *Cuddy Mountain*, 137 F.3d at 1380. Moreover, BLM's reliance on these site-specific permits ignores the fact that the programmatic analysis is the point at which the agency must consider the cumulative impacts of development and make decisions regarding how generally to allow for development. *Cuddy Mountain*, 137 F.3d at 1379

[25] If, for example, a POD of 75 wells in the Powder River watershed initially produces water at the rate of 30 gpm/well, the impacts resulting from the discharge or management of that water in the initial stages are more significant than the impacts resulting several years later when the discharge rates have tapered off. This is true even if another POD in the watershed is concurrently producing water at slower rates.

(requiring that cumulative impacts analysis provide "some quantified or detailed information," because "[w]ithout such information, neither the courts nor the public . . . can be assured that the [agency] provided the hard look that it is required to provide."). BLM's postponement of the analysis until the site-specific stage here deprived the agency of the opportunity to require smart, sustainable development across the region and thus undermined the goals of NEPA. *See Kern*, 284 F.3d at 1072.

Last, even assuming that site-specific management plans and permits will consider the impacts of particular wells on small drainages and aquatic life and prevent their impacts, there are still at least two NEPA problems with this approach. First, the mitigation measures themselves may cause impacts that have not been adequately identified or studied, in violation of NEPA's "hard look" requirements. *Cuddy Mountain*, 137 F.3d at 1380. Second, the site-specific analyses will not include an analysis of the regional or cumulative impacts that the mitigation might cause.[27] The programmatic stage of analysis is the point at which BLM must evaluate the impacts across the region, assessing and disclosing the extent of environmental degradation expected and analyzing alternatives, including potential mitigation, that could reduce that degradation. In this case, BLM has postponed meaningful analysis to the site-specific stage of development, at which point the agency's ability to change course and require a different type of development will be limited. *Kern*, 284 F.3d at 1072.

[26] For example, the Montana Fish, Wildlife and Parks noted that MPDES permits, even if required, are not likely to protect aquatic life because Montana does not regulate major ions through its permitting process. SGI at ¶ 175.

[27] If, for example, many more water impoundments are required than anticipated, because of higher-than-predicted discharge rates, the cumulative impacts of these impoundments will never be analyzed.

C. BLM's Analysis Failed To Take A Hard Look At Impacts To Soils and Vegetation.

The MEIS assumes that Montana's surface water will not be adversely affected because much of the water will be contained in impoundments, used beneficially for irrigation, or otherwise disposed in ways that are likely to affect surface resources – namely, soils. SOF ¶ 163-66. However, the BLM has not considered what it will mean for the regional environment or the people who live there if water management designed to protect water quality results in widespread damage to soils. Rather, BLM's analysis simply describes the general nature of the impacts that CBM development may cause to soils and identifies the total number of acres that may be affected in Montana. In violation of NEPA, BLM's analysis never quantifies those impacts across Montana, much less considers the cumulative, regional impacts across the two-state region. *Cuddy Mountain*, 137 F.3d at 1379.

BLM seeks to excuse its failure to conduct an examination of the cumulative impacts of development on soils by asserting that with proper management, CBM water can be applied to soils without causing damage, that site-specific management plans will prevent damage in the first place, and that reclamation requirements will ensure no lasting damage. BLM Br. at 39-41. As with its surface water analysis, however, BLM has relied on mitigation to prevent impacts without studying its efficacy in violation of NEPA. *Cuddy Mountain*, 137 F.3d at 1380. For example, in spite of the very high SAR levels from CBM discharges in the Tongue River subwatershed, the BLM's analysis assumes that all produced water other than that already authorized by the CX Field MPDES permit will be used beneficially or otherwise prevented from reaching the Tongue River. SOF ¶¶ 165, 168; MEIS at 4-77. This means that some significant amount of the water will have to be managed or contained on the land; however, there is no analysis of the extent to which this poor quality water can be managed on the land without

causing significant impacts to the soils. To the extent that impacts to the soil will occur as a result of the management practices, BLM has not considered "important aspect[s] of the problem," including the cost or feasibility of soil reclamation on a broad scale, much less the adequacy of reclamation bonds to cover these costs. *Motor Vehicle Mfrs.*, 463 U.S. at 43.

D. Defendants Have Not Shown That The FEIS Took A "Hard Look" At Air Quality Impacts.

As WORC has demonstrated, BLM never evaluated or disclosed CBM development's impacts on pristine Class I and Class II airsheds supposed to be protected under both federal and state Prevention of Significant Deterioration ("PSD") programs. WORC Br. at 14-18. Specifically, BLM failed to perform a PSD analysis to evaluate whether emissions from the project, combined with existing air emissions in the region, would exceed the available PSD increments for NO_x and PM_{10} or cause an unlawful deterioration of visibility within federal wilderness areas and National Parks. *Id.* BLM's failure to conduct this analysis is a critical failure because Congress has determined that violations of statutory PSD standards are *de facto* significant impacts to air quality (see 42 U.S.C. § 7470 et seq.). They therefore must be disclosed to the public in a NEPA document. *Baltimore Gas*, 462 U.S. at 97.

Defendants first argue that a PSD analysis is "not legally required." Marathon Br. at 28; BLM Br. at 42. This excuse fails. In this case, the record demonstrates that BLM and other agencies knew that PSD violations would be a significant environmental impact of the project. *See* VII.I.18 at 4; VI.C.6 at 11351; CD07:36897; MEIS at 4-16. The only way to adequately analyze these significant impacts was by conducting a PSD increment consumption analysis,[28]

[28] BLM attempts to argue that its failure to conduct a PSD increment consumption analysis is merely a disagreement regarding "methodology." BLM Br. at 42. There is no disagreement. The expert agencies charged with implementing the Clean Air Act offer only this one method for properly evaluating the impacts addressed by PSD increment consumption, as set forth in both

Instead, BLM provided only general conclusions that CBM development may have the "potential" to exceed certain PSD increments or cause unlawful visibility impacts. MEIS at 4-13, 4-27. Again, this is precisely the type of "general statement[] about 'possible' effects and 'some risk'" that "do[es] not constitute a 'hard look' absent a justification regarding why more definitive information could not be provided." *Blue Mountains*, 161 F.3d at 1213 (citation omitted). BLM has provided no justification here why it could not provide the "more definitive information" that a PSD increment consumption analysis would offer.[29]

In addition, BLM's failure to conduct a PSD analysis caused it to fail to consider cumulative air impacts. A PSD analysis evaluates the cumulative emissions from all past projects (sources to date) to develop a baseline from which to project deterioration of air quality from new sources when added to that baseline. In contrast, here BLM never looked at the sources to date, but instead considered only the present proposed CBM development with other new and reasonably foreseeable emission sources. VII.G.12 at 7-12. This failure to consider cumulative air impacts from past actions, 40 C.F.R. § 1508.7, much less provide "quantified or detailed information" of their air impacts, *Cuddy Mountain,* 137 F.3d at 1379, violated NEPA.

Last, Defendants argue that site-specific permitting by MDEQ will effectively prevent any violations of the PSD standards. BLM Br. at 42; Marathon Br. at 31-33. WORC has already

EPA and Montana's PSD regulations. SOF at ¶¶ 198-204. These regulations are entitled to deference. *Chevron v. Natural Resources Defense Council*, 467 U.S. 837, 843-44 (1984). In contrast, BLM's approach, which treats PSD standards as mere "threshold[s] of concern," is entitled to no deference and cannot substitute for the expert agencies' regulatory mandate, especially given that there is no rational basis expressed in the record for doing so.

[29] By failing to conduct this "hard look," BLM, the public, and this Court are left to guess at "significant aspects of the problem" of air quality, including: (1) exactly how much available increment is presently available; (2) whether the PSD increment will be fully consumed (or exceeded) by the first, hundredth, or thousandth well drilled under the plan; (3) the magnitude of visibility deterioration on public lands,; and (4) whether it would be best to consider other alternatives or mitigation to effectively prevent violations of PSD standards.

demonstrated the falsity of this assurance, proving that the State of Montana does not subject oil and gas development to this regulatory requirement during permitting. WORC Br. at 16-17; SOF ¶¶ 203-204 . Marathon, in contrast, cites nothing in the record to show that Montana has agreed to perform a PSD review on any CBM equipment. *Compare* Marathon Br. at 32-33 *with* SGI ¶ 204. BLM's reliance on Montana's permitting program to mitigate air impacts with no basis in the record violated NEPA. *See, e.g., Nat'l Parks*, 241 F.3d at 734. Moreover, BLM once again violated NEPA by declining to address reasonably foreseeable air impacts in the EIS and attempting to defer their consideration to the site-specific stage. *Kern*, 284 F.3d at 1072.

III. BLM FAILED TO COMPLY WITH NEPA'S PROCEDURES MEANT TO ENSURE A "HARD LOOK" AT ENVIRONMENTAL IMPACTS.

WORC showed that BLM, in its haste to restart Montana CBM development, gave short shrift to NEPA procedures intended to ensure that the agency took a hard look at impacts. This is indefensible under Ninth Circuit caselaw. This Court must strictly interpret the procedural requirements described in NEPA and its implementing regulations "to the fullest extent possible," consistent with NEPA's policies. *Center for Biological Diversity v. United States Forest Service*, 349 F.3d 1157, 1166 (9th Cir. 2003) (citations omitted). Under this standard, BLM's "grudging, pro forma compliance" in this case "will not do." *Id.*

A. BLM Failed To Consider A Reasonable Range Of Alternatives.

1. BLM Has Not Justified Its Failure To Analyze A Reasonable Range of Alternative Well Numbers.

WORC demonstrated that BLM violated NEPA by failing to consider any alternative incorporating a range of well numbers "between the obvious extremes," *Colorado Evnt'l Coalition v. Dombeck*, 185 F.3d 1162, 1175 (10th Cir. 1999), of all ("up to 18,275" federal and state CBM wells in each action alternative) or nothing (no new CBM wells allowed beyond the

COMMENTS OF ENVIRONMENTAL DEFENSE
ON SCOPE OF SUPPLEMENTAL EIS FOR
MONTANA OIL AND GAS PROJECT

Prepared by
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These comments focus on the portion of SEIS that will address the impact of emissions of air pollutants from the Montana Oil and Gas Project. Commenters request that BLM use this opportunity to remedy the deficiencies in the 2003 FEIS and Air Quality Assessment prepared in 2002 by Argonne National Lab, and first released to the public along with the FEIS in January 2003. A fully adequate EIS that satisfies the requirements of NEPA and FLPMA could eliminate the need to litigate many of the claims in the pending litigation challenging the adequacy of the 2003 FEIS and ROD. Environmental Defense et al. v. Norton, No. CV-04-64-BLG-RWA (D.Mt).

I. Executive Summary.

An adequate SEIS would fulfill the obligations under NEPA to assess and disclose the impacts of expected emissions on air quality standards, PSD increments, and air quality related values (including visibility and acidification of lakes with little acid neutralizing capacity), and that identifies mitigation measures sufficient to prevent expected violations of NAAQS, PSD increments and adverse impacts on air quality related values. To satisfy the Court's remand in the NPRC case, the SEIS must consider how phased development can be applied as a mitigation strategy to prevent violations of standards and adverse impacts on air quality related values protected under the Clean Air Act.

An adequate assessment of impacts and mitigation measures under NEPA is necessary to provide the BLM and the public with the information needed to implement the FLPMA requirement that the RMP must "provide for compliance with applicable air pollution control laws, including State and Federal air … pollution standards or implementation plans." 43 U.S.C. § 1712(c)(8).

To satisfy both NEPA and FLPMA, BLM must prepare a complete air quality analysis that includes an assessment of the cumulative impacts of Project emissions together with other emissions from sources in the region that contribute to visibility impairment, PM-10 NAAQS violations and potential violations of PSD increments for PM-10 and NO2. Without performing a comprehensive assessment of the cumulative impacts of emissions from all identifiable sources that contribute to potential violations of these standards and air quality related values, BLM cannot satisfy its obligation under NEPA to determine whether emissions from the Project will cause or contribute to pollution in the ambient air that has a "significant impact on the human environment" because it "threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment." 40 CFR § 1508.27(b)(10).

Without assessing cumulative impacts in a manner that allows BLM to determine whether these various standards under the CAA will be violated, BLM will not have the information to know how much Project emissions, or regional emissions including Project emissions, will need to be reduced in order to avoid, prevent or eliminate violations of CAA standards and air quality related values. NEPA explicitly requires that the EIS for the Project "shall include discussions of: (h) Means to mitigate adverse environmental impacts (if not fully covered under § 1502.14(f))." "Mitigation includes: (a) avoiding the impact altogether by not taking a certain action or parts of the action; (b) minimizing impacts by limiting the degree or magnitude of the action and its implementation." 40 CFR § 1508.20. Furthermore, the requirement of FLPMA that the RMP "provide for compliance" with these standards re-enforces the requirement of NEPA that the EIS identify the measures available to BLM to provide for compliance.

Because the 2003 FEIS and AQA demonstrated that total emissions from the Oil and Gas Project in Montana and Wyoming will cause a) violations of the PM-10 NAAQS in the counties where oil and gas development will occur in proximity to surface coal mines, b) violations of the PSD increments for PM-10 and NO2 in class I areas, c) visibility impairment beyond the levels that are perceptible in all 15 class I areas included in the modeling domain, and d) acid deposition in excess of the standards for determining acceptable limits of change to acid neutralizing capacity, NEPA requires that BLM must at least determine the maximal level of emissions that may be allowed without causing or contributing to violations of pollution limits in the ambient air, and identify mitigation capable of preventing such violations.

BLM failed to include any consideration of the means for achieving compliance with these limitations in the 2003 EIS. Therefore the SEIS must identify the maximal permissible emissions as part of its evaluation of the role that phased development can play as a mitigation strategy in achieving compliance with the applicable air quality requirements. Then levels of development consistent with maximal permissible emissions must be identified, and policies designed to achieve, but not exceed, those levels of development must be evaluated as part of BLM's consideration of phased development as a mitigation strategy.

II. BLM May Not Rely on Prior Inadequate MT Final EIS.

The Final EIS issued in 2003 was seriously deficient in its consideration of cumulative air quality impacts, and may not be relied upon as the basis for consideration of mitigation that may be achieved by phased development. The EIS was factually, technically and legally deficient for numerous reasons, including, but not limited to, the failure to consider the cumulative impact of emissions from all sources that contribute to the concentrations of pollutants subject to "maximum allowable increases" under section 163 of the Clean Air Act, the failure to determine the frequency of days when emissions would exceed the threshold of perceptible visibility impairment, the failure to include all sources likely to contribute to visibility impairment in each of the 15 class I areas included in the modeling analysis, and the failure to determine the

maximal permissible emissions that would not cause or contribute to each of the applicable requirements under the CAA.

In order to perform an evaluation of the mitigation benefits that can be achieved by phased development, the SEIS must identify the level of emissions that can be allowed from the Project, when considered together with other emissions in the region, without causing or contributing to violations of the various CAA requirements. Since no such assessment was performed in the AQA for the 2003 EIS, this analysis must be performed in order for the SEIS can be adequate under NEPA or FLPMA.

A. 2003 EIS Failed To Fulfill BLM's Duty To Ensure Compliance With CAA.

BLM's primary statutory obligation is to adopt "land use plans" pursuant to 43 USC §1712(a) that comply with the directives of FLPMA. An RMP is the framework for the adoption of the "land use plans" required by the Act. RMPs must achieve the management objectives established by Congress, which require plans that "protect the quality of … ecological, environmental, air and atmospheric, water resource and archeological values; [and] that where appropriate will preserve and protect certain public lands in their natural condition;…." 43 USC §1701(a)(8). The Act also requires that "in the development and revision of land use plans [RMPs], the Secretary shall—(8) provide for compliance with applicable pollution control laws, including State and Federal air, water, noise or other pollution standards or implementation plans." 43 USC §1712(c)(8).

> These statutory directives have been implemented by regulation:
> *Each land use authorization shall contain terms and conditions which shall: (3) Require compliance with air and water quality standards established pursuant to applicable Federal and State law. 43 CFR §2920.7.*

BLM has acknowledged its obligation under the Federal Land Policy Management Act to ensure compliance with CAA requirements. These statutory and regulatory obligations were confirmed in the FEIS for the Wyoming Oil and Gas Project, and by internal memoranda. In the Wyoming Final EIS, BLM explained that its statutory duties with regard to protecting air quality require that—

> Under both FLPMA and the CAA, BLM is required to assure that its actions (either direct or by use authorizations) comply with all applicable local, state, tribal and federal air quality requirements, including PSD Class I and II increments.

Wyoming Final EIS, at S-227.

The BLM acknowledges that pursuant to these statutory mandates, "under both FLPMA and the CAA, BLM cannot authorize any activity which does not comply with all the applicable local, state, tribal, and federal air quality laws, statutes, regulations, standards, and implementation plans." Wyoming FEIS, 4-379. "These requirements include the NAAQS and WAAQS which set the maximum limits for several air pollutants, and PSD increments which limit the incremental increase in certain air pollutants (including NO2, PM10, and SO2) above legally defined baseline concentration levels." Id.

BLM failed to carry out these statutory responsibilities in the 2003 FEIS and ROD. Despite comments from EPA requesting mitigation measures to address predicted PSD violations and visibility impairment at class I parks and wilderness in violation of the CAA prohibition against perceptible impairment of visibility, and protests from Environmental Defense and others asking BLM to adopt measures in the RMP to prevent these violations, BLM took no action.

On February 7, 2003, 3 weeks after the FEIS and AQA were released, Scott Archer from BLM's National Science and Technology Center advised the Special Assistant to the national Director of BLM who was responsible for managing approval of the Oil and Gas Project that –

> [U]nder both the Clean Air Act and the Federal Land Policy and Management Act, BLM has both the authority and responsibility to assure that it's actions (including all authorized actions) comply with all applicable local, state, tribal and federal air quality laws, statutes, regulations, standards, increments, and implementation plans. Under FLPMA, we also have the authority and responsibility to prevent 'unnecessary and undue' degradation of the environment, including air quality.[1]

Pursuant to this authority Archer recommended to BLM management that--

> the ROD's could further require that any group or individual requesting a land use authorization demonstrate that their future actions will comply with all applicable air quality requirements, and that if any authorized user of the Public Lands is found to be out of compliance, then the authorization will be suspended until compliance can be assured.
>
> * * *
>
> For PSD Class I Increment on Northern Cheyenne Reservation, define a source emission tracking program and action level/decision points.

Id. None of these mitigation strategies were included in the ROD. Instead, BLM rejected the protests requesting a full increment consumption analysis to determine how much emission reduction would be necessary to prevent violations, and requests for mitigation of predicted violations, on the ground that none of the expected CAA violations were "significant." BLM Protest Response (April 29, 2003 Letter from Edward Shepard, BLM

[1] February 5-7, 2003, Email from Scott Archer, Senior Air Resource Specialist, BLM National Science and Technology Center, to Pete Culp, Special Assistant to the Director U.S. BLM, regarding the need for air quality mitigation measures in the Montana and Wyoming RODs, at 1.

Assistant Director Renewable Resources and Planning, to Tom Darin, Wyoming Outdoor Counsel).

B. BLM May Not Rely Upon State Permit Programs to Avoid Affirmative Duties Under NEPA and FLPMA.

Reliance on the State's permitting process cannot be substituted for the affirmative duty imposed on BLM to "provide for compliance" with NAAQS and the increments, both because FLPMA requires that the RMPs contain the measures necessary to ensure compliance, and because BLM has no assurance that the States will perform a complete increment consumption analysis before the proposed actions are substantially underway and contributing to additional emissions that may add to further exceedances of increments or cause increments to be violated. For these reasons, the EISs must include the increment consumption analysis so that BLM's obligation to develop and adopt sufficient mitigation measures may be performed as part of the project NEPA analyses and adopted as conditions in the ROD.

BLM implies that it need not conduct a "regulatory" increment consumption analysis because "the determination of PSD increment consumption is a legal responsibility of the applicable air quality regulatory agencies, with EPA oversight." Wy FEIS, p.3-298. The fact that the State has a legal responsibility to protect increments does not mean that BLM is thereby relieved of its independent responsibility under FLPMA to adopt RMPs that "provide for compliance with pollution standards," or its obligation under NEPA to fully describe the cumulative impacts of the proposed projects and identify mitigation measures to prevent adverse impacts. The parties protest BLM's failure to perform these obligations imposed on BLM itself under federal law.

The only explanation BLM offered for refusing to carry out its responsibilities under NEPA and FLPMA was a general assertion that the State would ensure compliance.

> [A]s part of the permit approval process, the [state] air quality regulatory agencies would prepare additional analysis, conduct monitoring, and require mitigation as needed to ensure compliance with all applicable standards before permits could be approved. Therefore, some of the impacts predicted in the Final EIS that could be significantly different than those anticipated in the Draft EIS will be prevented through the use of mitigation measures … . Id.

BLM acknowledges that only "some of the impacts predicted in the Final EIS" will be prevented through the State permit process. It does not claim that all violations will be prevented, nor does it claim that even most of the violations will be prevented by the State permit programs. There is no analysis of which violations are likely not to be addressed through the State permit programs, and what actions BLM may be required to take to prevent the violations that will not be prevented by the State permit programs.

Neither the Montana or Wyoming EISs, or the RODs, provide any discussion or analysis of the Montana or Wyoming permit programs to determine whether they include legal authority to ensure compliance with NAAQS, PSD increments or adverse impacts on visibility and other air quality related values in Class I areas caused by emissions from a vast number of so-called "minor sources." The EISs mislead the public and the decisionmaker by implying that State permit programs will address the violations identified in the EISs. The EIS states that "an analysis of cumulative impacts due to all existing sources and the permit applicant's sources, is also required during PSD analysis to demonstrate that applicable ambient air quality standards will be complied with during the operational lifetime of the permit applicant's operations. In addition, sources subject to PSD permitting requirements would provide specific analysis of potential impairment of AQRVs such as visibility and acid rain." WY FEIS, 3-299. The EIS is misleading because it fails to acknowledge that NOT one single source expected to be permitted as a result of the Oil and Gas Project will require the PSD review discussed in the EIS.

The EIS predicts that activities authorized under the RMP amendments will include 55,000 expected oil and gas wells, over 17,000 miles of new dirt roads, 4,000 diesel compressor stations and hundreds of other facilities. In the estimates of emissions developed for the EIS, not one of these sources is shown to exceed the statutory threshold for a "major source," defined by section 169(1) as 250 tons per year, which triggers the requirement for a "PSD permit" under CAA section 165. The Montana and Wyoming PSD State Implementation Plans ("SIP") use the same threshold for a PSD review. Section 165 and each PSD SIP requires a determination that emissions from such a source will not cause or contribute to violations of NAAQS and PSD increments, or cause adverse impacts on air quality related values in Class I areas. No such analysis is required either by the Act or either SIP as a requirement for permitting individual minor sources. In fact, a review of each PSD SIP shows that nothing in either SIP even authorizes the State to require an applicant to perform such analyses, or to deny a permit based upon a failure of an applicant to determine whether NAAQS, PSD increments or thresholds for adverse impacts have been exceeded.

The Wyoming PSD SIP only requires that major sources perform an increment consumption analysis and an assessment of visibility impairment in Class I areas. See Chapter 6, Permitting Requirements, Section 4 PSD. The provisions governing the permitting of minor sources only require that the applicant demonstrate that "the proposed facility will not cause significant deterioration of existing ambient air quality in the Region as defined by any Wyoming standard or regulation that might address significant deterioration." Chapter 6, Section 2(c)(iii). This provision does not explain what standard, if any, applies, nor does it describe the "region" that must be considered, whether emissions from the minor source must be considered together with emissions from other permitted and reasonably anticipated sources, or what pollutants are to be considered. There is clearly no obligation to conduct a "regulatory" increment consumption analysis as described by BLM. Furthermore, this provision does not address visibility impacts in Class I areas at all. Visibility is addressed only in Chapter 9 of the WY SIP rules. That provision applies exclusively to "major stationary sources." Chapter 9, Section 2(e).

The Montana PSD SIP similarly limits review to major stationary sources. Indeed, the Montana permit rules do not include any provision that even requires consideration of significant deterioration for minor sources. In the Rock Creek Mine permit review, MT DEQ went so far as to conclude that increment consumption need not be considered for emissions from minor sources. It was to address this interpretation of the SIP that EPA wrote to MT DEQ stating that increment consumption must be considered when minor source permits are reviewed. See letter from Richard Long to Jan Sensibaugh, May 22, 1996.

The Clean Air Act and EPA's regulations require that the State track emissions to determine whether aggregate emissions in an area have or will cause NAAQS or PSD increment violations, 40 CFR § 51.166(a), and States are required to remedy visibility impairment caused by existing sources, 40 CFR § 51.309. If either State had performed such an analysis BLM might properly rely on it to show that existing sources have not caused NAAQS or PSD violations. Neither State has performed the kind of analysis required by these regulations.

Nor has BLM received any commitment from the States that such analyses will be performed prior to the permitting of minor sources, or that the results of such analyses would be used to limit or prevent the construction of minor sources when increments have been exceeded or would likely be exceeded. Only Wyoming even has a regulatory provision that arguably creates authority to deny permits for minor sources if PSD increments are violated. Montana not only lacks such a regulation, but claims in other contexts that increment consumption is not relevant to the permitting of minor sources. In both states, authority to consider visibility impacts is limited to Major stationary sources. Thus even if the States committed in an MOA to perform increment consumption analyses and visibility impairment assessments, there is no basis for assuming, as BLM did, that the results would or could be used in the permitting process, or that increments and visibility will be protected.

None of the Federal or State regulatory requirements establish an affirmative obligation on the State to mitigate the impacts of aggregate emissions from large numbers of minor sources before those sources are permitted. Nothing in current law that governs each State's permitting of minor sources can be relied upon by BLM to avoid its primary responsibility under FLPMA to ensure that activities authorized by BLM on federal lands will not cause violations of standards or adverse impacts on air quality related values in Class I areas.

Therefore, the failure to include in the 2003 Montana and Wyoming EISs a complete assessment of the effect of Project emissions on possible violations of PSD increments, taking into account emissions of other sources that consume increment, and the failure to identify maximal permissible emissions, renders the 2003 EISs inadequate under both NEPA and FLPMA. To satisfy BLM's current obligation under the remand order to consider the mitigation benefits of phased development on the significant impacts of emissions of air pollutants, these major deficiencies in the 2003 EISs and AQA must be remedied.

III. Failure to Conduct Complete Increment Consumption Analysis Violates FLPMA and NEPA.

In order for BLM to comply with the remand order to consider phased development as a mitigation strategy, it must first determine the magnitude that emissions from the Oil and Gas Project must be reduced in order to ensure that such emissions will not cause or contribute to violations of PSD increments.

Both the Montana and Wyoming EISs acknowledge that the 2003 AQA fails to include a complete increment consumption analysis. The Wyoming FEIS describes the air quality assessment as providing "[c]omparisons to the PSD Class I and II increments [that] are intended to evaluate a threshold of concern for potentially significant adverse impacts, and do not represent a regulatory PSD Increment Consumption Analysis." FEIS, p.3-299. The FEIS acknowledges that even based on this inadequate assessment of increment consumption, that "[i]t is possible that Other and Cum emissions sources could exceed the PSD Class I increment in the Northern Cheyenne Indian Reservation, and that Cum emission sources could exceed the PSD Class I increment in the Washakie Wilderness Area, and the PSD Class II increment near the maximum potential development." FEIS, Appendix F, Table AQ-5, n.b. Based on this "threshold of concern for potentially significant adverse impacts," the FEIS recommends that "a regulatory 'PSD Increment Consumption Analysis' should be conducted during permitting by the appropriate Air Quality regulatory Agency." Id. However, no such analysis is required as a condition of the ROD before BLM issues permits to drill or conduct other polluting oil and gas development activities on federal lands.

No reason is given for the failure to perform such an analysis as part of the EIS. Indeed, the Wyoming FEIS, at p.3-298, acknowledges that "[a] regulatory PSD Increment Consumption analysis may be conducted as part of a New Source Review, or independently." [Emphasis added.] The NEPA documents provide no rational basis for not performing an independent increment consumption analysis as part of the EIS review.

A. Protection of Air Quality Increments is the Heart of PSD.

In a brief filed in the Ninth Circuit Court of Appeals, the U.S. Department of Justice provided a good summary of the increment enforcement process.

> In determining what level of deterioration to permit in a given air quality planning area, there needs to be a starting point of air pollution -- a "baseline" concentration level -- against which to assess expected emission increases. The CAA limits the amount of permissible increase in air pollution concentration over a baseline, and these caps are known as the "PSD increments." See 42 U.S.C. § 7473(a)-(b) (increments for particulate matter and SO2); 40 C.F.R. § 52.21(c) (increments for NO2). As with the NAAQS, increment is expressed in terms of micrograms of a pollutant per cubic meter of air ("ug/m3").

> Determining the "baseline concentration" for an air quality planning area necessarily involves collecting air quality data and conducting technical analyses. See Alabama Power Co. v. Costle, 636 F.2d 323, 374 (D.C. Cir. 1980) ("The increment concept incorporates the idea of a baseline from which deterioration is calculated, by models or monitors, to determine whether it is permissible."). Under the Act, this assessment is keyed to "the first permit applicant" in that area. Id. at 376. That is, "baseline concentration" is the ambient concentration level which exists at the time of the first PSD permit application. 42 U.S.C. § 7479(4); 40 C.F.R. § 52.21(b)(13)(i). The date on which this first PSD permit application is submitted is known as the "minor source baseline date." 40 C.F.R. § 52.21(b)(14)(ii). / This date applies to the "baseline area," which essentially tracks the border of an air quality planning (section 107(d)) area. 40 C.F.R. § 52.21(b)(15)(i).

Filed October 7, 2002, in Reno Sparks Indian Colony v. EPA, No. 02-71503.

This description makes clear that the essential element of an increment consumption analysis is a determination of the extent to which the allowable increment has been consumed since the baseline was set for the area affected by the proposed projects. Because the EIS does not conduct a regulatory analysis, it does not identify the minor source baseline dates for any of the pollutants in either Wyoming or Montana. In both Wyoming and Montana the baseline area is the entire project area. Montana baseline area for NO2 is "statewide," 40 CFR §81.327. See letter from Richard Long, EPA Region VIII Air Program Director, to Jan Sensibaugh, Air Division Director, MT DEQ, May 22, 1996. EPA believes the baseline date for NO2 in Montana is February or March 1990 based on the permit application for Continental Lime. Id. The NO2 baseline area in Wyoming is also Statewide. The minor source baseline date was set February 28, 1988, soon after the February 8,1988, trigger date established by EPA. See 53 Fed. Reg. 40656 (October 17, 1988). See letter from Bill Yellowtail, EPA Region VIII Regional Administrator.

For Particulate Matter ("PM"), the trigger date was in 1978, and the minor source baseline dates were set soon thereafter in both states. See Long letter for Montana; Thus all new sources, both major and minor stationary sources, as well as additional mobile source emissions, contribute emissions to the "maximum allowable increase" established under the CAA after those dates.

The emissions analysis performed for the EISs, however, considered new emissions as beginning with the permitted and "reasonably foreseeable" new sources after 1997. The analysis was performed using ambient air quality measurements made during the period from 3/96 until 4/97, and then developing an emissions inventory for coal mines, DM&E rail line and other new and "reasonably foreseeable" sources. AQA; WY FEIS, Chapter 4. The models were run by adding the allowable emissions from these new sources to existing emissions in 1996-97. This method of analysis effectively treated the 1996-97 period as the baseline period because it failed to account for any of the emissions added by sources that were permitted after the regulatory baselines were set in 1979 (for PM) and 1988 (for NO2). As a result, the modeling approach may be reasonable for the purpose of determining compliance with absolute limits in the ambient air such as the NAAQS and State AAQS when reliable ambient air quality data is available from the area where increased emissions will occur, but provides only a highly truncated assessment of the consumption of the allowable increments during the five years (1997-2002) for which new emissions sources were considered, while omitting any assessment of the increment consumed after the establishment of the regulatory baseline dates but before 1997.

The sources omitted from the consumption analysis are highly significant since they include some of the large increment consuming coal mines in the region, regional growth in VMT, other sources as noted in the EIS, p.4-382, as well as at least 67 post-baseline date sources identified by Environmental Defense in an independent review of public documents.[2] Among the 67 sources omitted from the emissions inventory used for the modeling of increment consumption in the AQA, emissions were reported on EPA's AIRS website for 48. NOx emitted from these 48 sources was approximately four times greater than the NOx emissions used in the AQA to estimate increment consumption. PM emissions from the omitted sources also far exceeded modeling emissions. Sources accounted for in the EIS accounted for no more than 20% of the NOx emissions, and perhaps 30% of PM emissions, added into the modeling domain during the period since the regulatory PSD baselines were set.

This has significant consequences for the EIS because Class I increments, such as the PM increment in the Northern Cheyenne reservation or the Washakie WA may have already been fully consumed, and the Class II increments in areas such as Cloud Peaks and Fort Belknap I.R. have been substantially consumed by Colestrip, Roundup and other earlier new sources and increased traffic emissions. For example, the increment consumption analysis performed for the recently permitted Roundup Power Plant shows that all of the SO2 increment, half of the NO2 increment and 27% of the PM-10 24-hr increment have been consumed by previously permitted sources. See Roundup Power Project, Draft EIS, Appendix B, Table B-2 (submitted to BLM in 2003 for the EIS record). The analysis does not show NO2 increment consumption at Washakie WA, but it must be a substantial portion of that increment as well because of the proximity of Colestrip to the WA.

The failure to include a comprehensive increment consumption analysis renders the EISs inadequate because without such analysis it is impossible to determine whether increments have been previously consumed by prior development, or whether the proposed actions will cause the increments to be exceeded. It is clear that the marginal compliance with the Class II increment for PM-10 (24-hr) at Ft Belknap (29.7 ug/m3 predicted compared to an increment of 30 ug/m3), and the marginal violation for that

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[2] See Exhibit P-2. The 67 identified sources are located within 300 km of one or more of the 15 Class I areas included in the modeling domain used for the 2003 AQA. The 300 km range is derived from the modeling range of the CALPUFF model as approved by EPA for PSD increment applications. See revised Appendix W, promulgated 68 Fed. Reg. 18439 (April 15, 2003).

increment in the near field analysis in Wyoming (30.8 vs. 30 ug/m3) is a significant misrepresentation of the magnitude of increased pollution when all new emissions sources are accounted for since the regulatory baseline dates. Similarly, the predicted violations of the Class I increments for PM-10 (12.8 vs 8 ug/m3) and NO2 (4.2 vs 2.5 ug/m3) at the N. Cheyenne IR, and for PM-10 (9.2 vs 8 ug/m3) at the Washakie WA, and the near-field exceedances of the PM-10 and increments in the Montana project area are all likely to be far greater when the effects of emissions from coal mines, the omitted 67 sources, mobile sources, and other emissions sources are added to the increment consumption analysis.

This is best demonstrated by the evidence in the EIS showing that the NAAQS are being exceeded at monitors located near current coal mining operations. In those areas, the increments are exceeded by factors of 2 or more. Thus the current analysis is seriously deficient with respect to characterizing the magnitude of increment violations that must be mitigated before the RMPs may be adopted and the projects approved for development.

Before BLM can determine the rate at which the resources may be developed without causing or contributing to PSD increment violations, the magnitude of those violations must be determined. The true magnitude of increment violations may only be determined by a regulatory increment consumption analysis that satisfies EPA's criteria. See 40 CFR § 51.166.

EPA has for many years brought to BLM's attention this obligation to perform a full increment consumption analysis with regard to oil and gas developments. In the context of the EIS for the Jonah II Natural Gas Development Project in Wyoming's Green River Basin, EPA's Regional Administrator informed BLM that "CEQ clearly states that mitigation measures must cover the 'range of impacts' of the proposed action and that the DEIS must identify the 'relevant', reasonable mitigation measures that could improve the project…even if they are outside the jurisdiction of the lead agency…'." Letter from Bill Yellowtail to Arlen G. Hiner, BLM Team Leader, October 3, 1997. In order to fully assess the magnitude of any increment violations that would need to be mitigated, EPA called upon BLM to conduct "a PSD increment consumption analysis [f]or [sic] NOx [that] should be completed for all sources to the west and southwest of the Bridger Wilderness Area and all sources to the east of the Fitzpatrick and Popo Agie Wilderness Areas that could reasonably have an impact." Yellowtail letter, Attachment 1, ¶4.

Even if BLM may satisfy NEPA with a methodology somewhat less rigorous than required by a regulatory increment consumption analysis, BLM must at least account for all emissions from sources that are known to have commenced operation after the baseline dates, that are currently operating, and for which reliable estimates of emissions are available from the source's compliance reports, the State, or EPA. It is arbitrary and capricious for BLM to simply ignore emissions from these sources in order to deceive the public and the decisionmaker by masking the true impact of new emissions from oil and gas development.

IV. BLM Must Disclose Perceptible Visibility Impairment.

Where the EISs identify expected violations of the CAA prohibition against causing increases in perceptible impairment of visibility, 43 USC §1712(c)(8) requires that the RMPs may not be approved until sufficient mitigation measures are adopted to prevent or remedy these violations. To determine how much mitigation is necessary, BLM must determine the amount of new emissions that is permissible without causing perceptible impairment.

The Clean Air Act also imposes on the Secretary of the Interior, as a Federal Land Manager ("FLM"), "an affirmative responsibility to protect the air quality related values (including visibility) of any such lands within a Class I area and to consider, in consultation with the Administrator, whether a proposed major emitting facility will have an adverse impact on such values." 42 USC §7475(d)(2)(B). The Secretary of the Interior is the FLM for five Class I areas where emissions from the projects are expected to cause or contribute to visibility impairment. These include Badlands WA, Wind Cave NP, Grand Teton NP, Yellowstone NP, and Theordore Roosevelt NP.

The Secretary's affirmative responsibility to protect visibility in these Class I areas is not limited by the Act to major stationary sources. Indeed, EPA's PSD rule requires the FLM to "consider, in consultation with the Administrator, whether a proposed source or modification would have an adverse impact on such values." 40 CFR §51.166(p)(2). Under the PSD rule, "Stationary source means any building, structure, facility, or installation which emits or may emit any air pollutant subject to regulation under the Act." Id., §51.166(b)(5). This obligation is therefore not limited to "major stationary sources."

A. EISs Fail to Implement FLAG Guidelines.

Acting through the NPS, the Department has cooperated with other FLMs in the development of visibility review procedures and criteria for assessing when visibility impairment is not acceptable. See Final FLAG Phase I Report, 66 FR (January 3, 2001). The WY EIS mentions the FLAG Report, but provides no analysis at all regarding how the acceptability criteria will be applied by the Secretary to the evidence of visibility impairment provided in the AQ assessment. Even more troubling is the lack of any discussion of the mitigation measures that could be applied through the RMP to protect visibility in Class I areas.

The Secretary's affirmative responsibility applies not only to the review of permits for major stationary sources, but also applies to the development of RMPs under FLPMA. Under FLPMA, public lands are to be managed to "protect the quality of …ecological, environmental, air and atmospheric, water resource and archeological values; [and] that where appropriate, will preserve and protect certain public lands in their natural condition." 43 USC §1701(a)(8).

The National Park Organic Act charges the Secretary with the duty to protect national park lands in their natural condition. Such lands that are also Class I under the Clean Air Act are subject to statutory directives that express the clear intent of Congress that these lands be included within the lands that the Secretary has an affirmative responsibility to protect. When the Secretary, acting through the BLM, is also developing RMPs for other federal public lands where the activities being authorized are shown to interfere with the express policies enacted to protect parks, wilderness and monuments under her stewardship, then the Secretary must exercise her planning authority under FLPMA to ensure that the air and atmospheric resources (including visibility) in Class I areas is protected.

The AQA, Appendix E, provides ample information showing that if the preferred alternatives for the WY and MT projects are approved, Alternatives 1 and E, massive degradation of visibility will occur in Badlands NM, Wind Cave NP, and Yellowstone NP when measured by the 1.0 deciview metric of change in light extinction. Visibility impacts at Grand Teton NP and Theodore Roosevelt will be less, but still well above the one deciview change in visibility that is considered the threshold for detection by the general public. Yet despite this evidence of extensive deterioration in visibility, the EIS is completely silent regarding how the Secretary will carry out her affirmative responsibility to protect visibility in these areas.

BLM attempts to avoid these impacts by focusing exclusively on the "direct project impacts" on visibility, rather than the cumulative contribution of project emissions when added to total emissions from all sources in the region. See WY FEIS, p.4-384. But the Act requires protection of visibility in Class I areas which is not determined by one source, or one set of sources, but by all sources adding emissions since the national goal was enacted. It is visibility impairment caused by these cumulative impacts that must be addressed and prevented.

To identify the maximal permissible emissions, BLM must identify the mitigation measures that can achieve the level of protection for visibility described in the FLAG guidelines.

B. EISs Fail to Implement EPA's "No Degradation" Policy Under the Clean Air Act.

In addition to the affirmative responsibility to "protect" visibility in Class I areas under her charge as an FLM, the Secretary acting through BLM under FLPMA, also has a responsibility to ensure the national visibility goal established by the Clean Air Act is implemented in all Class I areas likely to be impacted by emissions from developments authorized by RMPs.

The CAA "declares as a national goal the prevention of any future, and the remedying of any existing, impairment of visibility in mandatory class I Federal areas which impairment results from manmade sir pollution." 42 USC §7491(a)(1). EPA has promulgated rules to implement this national goal. 40 CFR Part 51, subpart P. These regulations include requirements defining reasonable progress toward the national goal. "The reasonable progress goals must provide for an improvement in visibility for the most impaired days over the period of the implementation plan and ensure no degradation in visibility for the least impaired days over the same period." 40 CFR §51.308(d)(1). This interpretation of the Act as requiring that existing visibility not be further impaired during the period when progress toward the national goal is being implemented was affirmed by the D.C. Circuit Court of Appeals in response to an attack by industry arguing that EPA is not authorized by the Act to establish a "no degradation" standard. American Corn Growers v. EPA, F.3d (D.C. Cir 2002)(" Petitioners' claim that the agency is without authority to mandate attainment of the national goal is therefore meritless.")

This standard for reasonable progress has not been addressed in the EIS, but should have been. At a minimum, the SEIS must identify the visibility for the least impaired days in each of the Class I areas where significant impacts are predicted, and the extent to which the additional emissions from the projects combined with other regional emissions increases would cause degradation on those days.

As was explained in more detail in the technical comments filed on the AQA by John Molenar in 2003, the information needed to identify the least impaired days is available from the transmissometer data used for the visibility impact analysis, and the out put from the CalPUFF model provides the information to provide a meaningful assessment of the extent to which visibility will be degraded on the least impaired days. Thus that information should be developed and included in any supplement to the 2003 EIS.

The results of that analysis should then be considered for the purpose of identifying the kinds of mitigation measures necessary to achieve the no degradation standard. This should also be addressed in any supplemental EIS to provide the factual context for determining the extent of emission reduction needed to determine mitigation measures as part of the ROD.

C. 0.5 dv is Measure of Perceptible Degradation.

In the analysis of visibility impairment, BLM needs to consider all the criteria for determining perceptible impairment. The Act defines perceptible impairment to include discoloration of the atmosphere, reduction in visual range, and perceptible light extinction measured as change in deciviews (dv).

Both the FLAG Report and EPA recognize that 0.5 dv change is the threshold of perceptible impairment in visibility.

The Federal Land Managers workgroup concluded that: "For the case of visibility impairment which changes the appearance of a viewed background feature [i.e., uniform haze as opposed to a plume], thresholds of perceptibility, where a just noticeable change occurs in the scene, have been found to correspond to a change in extinction (Dbext) as low as 2% under ideal conditions, up to 20% (NAPAP, 1990;

Pitchford and Malm, 1994). A Dbext of 5% will evoke a just noticeable change in most landscapes (NAPAP, 1990). The FLMs are concerned about situations where a change in extinction from new source growth is greater than 5% as compared against natural conditions. Changes in extinction greater than 10% are generally considered unacceptable by the FLMs and will likely raise objections to further pollutant loading without mitigation." FLAG Phase I Report, p. 26.

EPA concluded in its review of the science as part of the regional haze rulemaking that-- "The EPA agrees with the comment that a one deciview change should not be considered the threshold of perception in all cases for all scenes. The EPA believes that visibility changes of less than one deciview are likely to be perceptible in some cases, especially where the scene being viewed is highly sensitive to small amounts of pollution." 64 Fed. Reg. 35727. See also propsed BART guidelines, 69 Fed. Reg. 25184, 25194, col. 3 (discussion of threshold levels); final BART guidelines, 70 Fed. Reg. 39104, 39119-120, n. 28.

EPA refers to the NAPAP report for the assertion that "a change in extinction coefficient of approximately 5% [~ 0.5 dv] will evoke a just noticeable change in most landscapes." The technical basis for the statement is a model of perception thresholds in sharpness in video image displays. In the body of the NAPAP report, the authors argue that this model is relevant for situations with uniform haze, which is certainly appropriate for a situation with lots of small sources, like an oil and gas field. The full document is available from the regional haze docket -- ID # OAR-2002-0076-0137 [too big to email].

Based on this evidence, the analysis of perceptible visibility impairment should be based upon a 0.5 dv change, not 1.0 dv.

V. Acid Rain Impacts Identified, But Not Mitigated.

The 2003 EISs identified potentially adverse impacts on water chemistry in high altitude lakes with little acid neutralizing capacity. The mitigation measures to be considered for the purposes of preventing NAAQS and increment violations, and for ensuring no degradation of visibility on the least impaired days, should also be assessed to determine if they will prevent the adverse impacts on lake chemistry based on the FS guideline. If not, then additional mitigation options should be identified to determine the extent of mitigation needed to prevent adverse impacts on the quality of these lakes.

VI. Impacts on Public Health from Fine Particle Exposures Not Identified.

The emissions sources included in the proposed projects will be a major source of NOx emissions which are transformed in the atmosphere to form fine particle nitrates. Given the potentially severe adverse health effects associated with fine particle exposures, commenter requests that the SEIS fully assess the potential adverse public health effects associated with cumulative emissions of fine particles and fine particle precursors from the current and proposed sources of fine particles. The 2003 EISs predicted large increases in exposure to fine particles ("FP") from background concentrations of 20 to 66 μg/m3 (more than the current NAAQS for PM2.5) in MT, and from 19 to 42 μg/m3 in areas of Wyoming.

The recent evidence of the effects of FP exposures at these expected future concentrations demonstrates that increased premature mortality, hospitalizations, asthma and other respiratory disease episodes, increased medication and health care costs, increased loss of work days and lost wages as well as lost school days for children are expected at these levels of exposure. The EISs fail to address this new evidence, and fail to inform the public of these adverse health impacts.

A. Endangerment to Public Health from Exposure to Fine Particles.

The adverse health effects of fine particles (i.e., particles < 2.5 μm in diameter) ("FP") must be evaluated in the SEIS to determine acceptable levels of exposure to avoid endangering public health, and then to assess the impact emissions from the proposed projects will have on current background concentrations of PM2.5. If emissions from the proposed projects will cause or contribute to the exposure of residents above levels associated with adverse health effects, then the SEIS must identify mitigation measures sufficient to prevent those effects.

This analysis of FP health effects in the NEPA context is made necessary by EPA's failure to promulgate PSD increments for PM2.5 as required by §166 of the CAA, and its unlawful delay in promulgating revised NAAQS for PM2.5.

This analysis is made necessary because the FP NAAQS promulgated by EPA in 1997 does not prevent adverse health effects demonstrated by the health effects research published since 1996 when EPA closed the last version of the PM Criteria Document relied upon to set the 1997 NAAQS for PM2.5 to protect public health pursuant to §109(b) of the CAA. Therefore, the 1997 NAAQS appears no longer to be adequate to protect against adverse health effects identified in the health effects research identified by EPA in its revision to the Air Quality Criteria for Particulate Matter (EPA/600/P-99/002aF, EPA/600/P-99/002bF), released October 29, 2004. 69 Fed. Reg. 63,111. The residual adverse health effects allowed by the 1997 NAAQS that have been identified by EPA must also be disclosed to the public under NEPA, and considered by the decisionmaker when developing mitigation measures. In the event it is determined that emissions from the Oil and Gas Project will contribute to adverse health effects among the residents of Wyoming and Montana, mitigation measures must also be considered under NEPA to prevent those effects.

VII. SEIS Must Include Consideration of Cumulative Impacts of Emissions from Oil and Gas Development in Both Montana and Wyoming.

For the same reasons that EPA, State of Montana, National Park Service and numerous other commenters argued in 2002 that an analysis of emissions from the oil and gas project in both Montana and Wyoming needed to be addressed in an assessment of cumulative impacts, the SEIS must now also consider whether phased development is

necessary in both Montana and Wyoming in order to effectively mitigate adverse air quality impacts.

Emissions from only the Montana, or the Wyoming, portion of the Powder River Basin Project, taken separately, are either not predicted to cause violations of standards, or where they do individually cause violations, do not cause all the violations. For example, emissions from the Wyoming portion of the Project are predicted to contribute only 2.20 micrograms per cubic meter ("µg/m3") to the overall increase of 9.18 µg/m3 in the 24-hour average concentration of PM_{10} in the Washakie Wilderness class I area.. See Final Air Quality Assessment, at C-9, C-32. Yet, both EISs predict that total emissions from the entire Project, taken together with emissions from some other recently permitted sources, will cause the maximum allowable increase of 8 µg/m3 to be violated in the Washakie Wilderness Area. See, Wyoming Final EIS, at 4-387; Montana Final EIS, at 4-26, 4-27, and Table 4-10. Under these facts, the predicted PSD increment violation is not shown if the air quality assessment is limited to the impacts resulting from pollutants emitted from each separate RMP, or only the Montana portion of the approved oil and gas development.

Similarly, the 2003 AQA shows that some of the days when predicted visibility impairment will exceed 1 deciview ("dv") will be caused by emissions from the Wyoming portion of the Project taken alone, and other days will be caused by emissions from the Montana portion of the Project. The total number of days when visibility impairment will exceed 1 dv will be significantly greater than the impairment caused by emissions from only Montana. For example, BLM expects that emissions from the Wyoming development will add one or more days of visibility impairment greater than 1.0 dv to eleven of the fifteen Class I areas in the modeling domain, including five class I areas outside of Wyoming.[3] But the total number of days when visibility impairment will exceed 1 dv will be many days more than the days when Wyoming emissions, taken alone, will cause impairment.[4] Thus, the magnitude of the impacts that require mitigation, and both the kinds and magnitude of mitigation options that can prevent violations of the CAA, requires an integrated strategy that considers total impacts from all sources to identify sufficient mitigation.

BLM recognized in 2002 that it must look at cumulative impacts of emissions from the entire Project when it decided to prepare a single Air Quality Assessment. NEPA requires that BLM consider the cumulative impacts of development in both states. 40 CFR § 1508.7. If the SEIS fails to consider the cumulative impacts of emissions from both States, and fails to identify mitigation measures such as phased development that are adequate to prevent all violations of CAA requirements that may be expected to result from emissions in both states, the SEIS will be legally deficient from the outset.

CONCLUSION.

Environmental Defense urges BLM to prepare a comprehensive assessment of air quality impacts that remedies the deficiencies in the 2003 AQA and Final EISs in order to provide a sound basis for evaluating the potential for using phased development as a mitigation strategy to prevent expected violations of various CAA requirements identified in the 2003 AQA, and other likely violations that were not identified because of the deficiencies in the 2003 analysis.

Respectfully submitted,

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[3] See "Final Air Quality Assessment," at 7-61, Table 7.21, and E-21, Table E.2.2.2 [MT AR § VII, File G, Doc.12]. Air pollutants emitted by Project sources in Wyoming alone are expected to exceed the 1 dv threshold for visibility impairment in Class I areas outside of Wyoming: (1) 3 days per year at the Badlands Wilderness Area in South Dakota, and maximum daily impairment (i.e., the highest deciview impact on any single day) of 3.08 dv; (2) 4 days per year at the North Absaroka Wilderness Area in Montana, and maximum daily impairment of 3.95 dv; (3) 1 day per year at the Theodore Roosevelt National Park-South Unit in North Dakota, and maximum daily impairment of 1.55 dv; (4) 1 day per year at the UL Bend Wilderness Area in Montana, and maximum daily impairment of 7.06 dv; and (5) 4 days per year at the Wind Cave National Park, and maximum daily impairment of 2.71 dv. Id.

[4] By comparison, total visibility impairment predicted at these five class I areas is: 1) 28 days per year at the Badlands Wilderness Area, and a maximum daily impairment (i.e., the highest deciview impact on any single day) of 10.91 dv; 2) 15 days per year at the North Absaroka Wilderness Area, and a maximum daily impairment of 14.89 dv; 3) 7 days per year at the Theodore Roosevelt National Park (South Unit), and a maximum daily impairment of 4.62 dv; (4) 8 days per year at the U.L. Bend Wilderness Area, and a maximum daily impairment of 29.05 dv; and (5) 32 days per year at the Wind Cave National Park, and a maximum daily impairment of 9.05 dv. See "Final Air Quality Assessment," at 7-27, Table 7.10, and Appendix E-11 [MT AR § VII, File G, Doc.12].

Exhibit P-1

Emission Sources Listed in Exhibit P (Facility Name) with source of information relied upon to establish location within 300 KM of class I area, and government information source showing facility as permitted after PSD baseline date.

Number In Exhibit P	Facility Name	NOX (TPY)	PM10 (TPY)	SO2 (TPY)	Source Of Information For Emissions
1	Aldila Corp	81.73	14.49	3.71	Desolation Flats EIS[1]
2	Black Butte Coal Co_ Black Butte Mine	U[2]	2,627	U[2]	AIRS[4]
3	Blue Mountain Energy - Deserado Mine	NA[3]	NA[3]	NA[3]	Desolation Flats EIS[1]
4	Bridger Coal Company - Jim Bridger Mine	208	664	12	AIRS[4]
5	Bonanza Power Plant	5,700	138	1,135	AIRS[4]
6	Church & Dwight Company Incorporated	5.1	99.3	U[2]	AIRS[4]
7	Coal Creek Station	12,862	1,992	49,743	AIRS[4]
8	Colstrip Power Plant	827	32.4	1,262	AIRS[4]
9	Clear Creek Storage	43	U[2]	U[2]	Desolation Flats EIS[1]
10	Colorado Interstate Co Laramie Comp Stn	31	U[2]	U[2]	Desolation Flats EIS[1]
11	Colorado Interstate Gas Rawlins Comp	817	U[2]	U[2]	AIRS[4]
12	Connell Resources Inc Camilletti Pit	U[2]	U[2]	1.8	AIRS[4]
13	DOE BLM	1.7	U[2]	24	AIRS[4]
14	D.G. Huskins Construction Co. CT-1229	9	12.9	0.2	Desolation Flats EIS[1]
15	D.G. Huskins Construction Co. CT-1230	32.4	23.7	59.6	Desolation Flats EIS[1]
16	Elam Const Incorporated Davenport Pit	U[2]	U[2]	1.72	AIRS[4]
17	Exxon - Shute Creek I	109	U[2]	1,447	AIRS[4]
18	FMC Wyoming Corp _ Soda Ash Plant	1,095	168	265	AIRS[4]
19	Frontier Refining Incorporated	390	220	1,409	AIRS[4]
20	General Chemical Soda Ash Plant	3,608	1,035	4,761	AIRS[4]
21	Great River Energy Stanton Station	3,172	137	9,784	AIRS[4]
22	Holly Sugar Corporation	98.2	224	213	AIRS[4]
23	Jonah Gas Gathering CT-1422	40.6	U[2]	U[2]	Desolation Flats EIS[1]
24	Jonah Gas Gathering CT-1423	60.4	U[2]	U[2]	Desolation Flats EIS[1]

Number In Exhibit P	Facility Name	NOX (TPY)	PM10 (TPY)	SO2 (TPY)	Source Of Information For Emissions
25	Kern River Gas Trans. _ Muddy Creek	62.6	U[2]	U[2]	AIRS[4]
26	Kn Energy Inc - Sand Draw Station	36.5	U[2]	U[2]	AIRS[4]
27	Leland Olds Power Plant	12,955	491	50,107	AIRS[4]
28	Louisiana Land & Explor._lost Cabin	7.8	U[2]	1,383	AIRS[4]
29	Louisiana Pacific Carbon CT-1122 BLM	28.7	U[2]	U[2]	AIRS[4]
30	Milton R Young Station	22,098	550	41,344	AIRS[4]
31	Mountain Cement Co, CT-1137	636.4	30.7	72.3	AIRS[4]
32	Northwest Pipeline	790	3.17	1.86	AIRS[4]
33	Presidio Oil CT-1128 BLM	33.9	U[2]	U[2]	Desolation Flats EIS[1]
34	Questar Gas Mgmt Company Pwfc Northside 1	4.14	U[2]	U[2]	AIRS[4]
35	Questar Gas Mgmt Co Pwfc Southside 2	38.5	0.1	U[2]	AIRS[4]
36	Questar Gas Mangement- CT-1295 BLM	99.85	U[2]	U[2]	Desolation Flats EIS[1]

Number In Exhibit P	Facility Name	NOX (TPY)	PM10 (TPY)	SO2 (TPY)	Source of Information For Emmisions
37	R.M. Heskett Station	Omitted[6]	Omitted[6]	Omitted[6]	AIRS[4]
38	S F Phosphates, Inc.	68.4	28.2	1,460	AIRS[4]
39	Solvay Minerals, Inc	1,376	194	89.7	AIRS[4]
40	South And Jones BLM	1.6	94	U[2]	AIRS[4]
41	SRTV BLM	2.48	2.79	U[2]	Desolation Flats EIS[1]
42	Tri State Generation Craig Power Plant	16,761	378	10,662	AIRS[4]
43	Twentymile Coal Co	U[2]	364	U[2]	Desolation Flats EIS[1]
44	TotalFinaELF's TG Soda Ash BLM	173	26.2	U[2]	Desolation Flats EIS[1]

Number In Exhibit P	Facility Name	NOX (TPY)	PM10 (TPY)	SO2 (TPY)	Source of Information For Emmisions and Coordinates
45	Umetco Minerals Corporation	U[2]	22.4	U[2]	AIRS[4]
46	Western Gas Resources Inc Sand Wash Station	U[2]	U[2]	U[2]	AIRS[4]
47	Western Mobile Northern Steamboat S Pit	U[2]	23.05	U[2]	Desolation Flats EIS[1]
48	Williams Field Service - Permit CT-1306	31.89	U[2]	U[2]	Desolation Flats EIS[1]
49	Williams Field Services (CT 1177)	32.86	U[2]	U[2]	Desolation Flats EIS[1]
50	Williams Field Svcs_Opal Plant	882	U[2]	U[2]	AIRS[4]
51	Williams Field Services _ Echo Springs	195	U[2]	U[2]	AIRS[4]
52	Wyoming Lime Producers	249	77.2	3.7	AIRS[4]
53	Atlantic Rim CBM Project	NA[3]	NA[3]	NA[3]	Fed. Reg.[5]
54	Bitter Creek Pipeline's Symons Central Compressor	NA[3]	NA[3]	NA[3]	Badger Hills EA[7]
55	Bitter Creek Pipeline's Consul 27 Compressor	NA[3]	NA[3]	NA[3]	Badger Hills EA[7]
56	Basin Creek 100 MW power plant	NA[3]	NA[3]	NA[3]	??
57	Glacier International's 160 MW power plant	NA[3]	NA[3]	NA[3]	??
58	Great Northern/Kiewit's 500 MW Eastern Montana coal-fired power plant	NA[3]	NA[3]	NA[3]	??
59	Natrona County International Airport	0.7	22.8	0.2	Desolation Flats EIS[1]
60	Nelson Refining System's	73.6	4.4	60.2	Desolation Flats EIS[1]
61	Two new coal mines planned for Otter Creek	NA[3]	NA[3]	NA[3]	MT PRB EIS [9]
62	Puron Corporation's Coal Conversion Plant	NA[3]	NA[3]	NA[3]	WY DEQ Report[8]
63	Seneca Coal Company's Seneca II mine	NA[3]	50	NA[3]	AIRS[4]
64	Texaco USA's Stagecoach Draw Oil and Gas	16.13	U[2]	U[2]	Desolation Flats EIS[1]
65	Tongue River Railroad	NA[3]	NA[3]	NA[3]	MT PRB EIS [9]
66	Union Pacific Resource's Champlin Gas Plant	200.73	U[2]	U[2]	Desolation Flats EIS[1]
67	Wold Trona Company's Soda Ash plant	155	111	33.3	Desolation Flats EIS[1]
	Total Emissions in Tons Per Year:	**86202.31**	**9860.6**	**175339.29**	

Note

1. Facilities identified by BLM in the emission inventory of the “Desolation Flats Natural Gas Exploration and Development Project, Technical Support Documents for Ambient Air Quality Impacts Analysis,” Rawlings and Rock Springs Field Offices, at Appendix B (April 2003), and also within 300 km of one or more of the 15 Class I areas listed by BLM as affected by emissions from the PRB Oil and Gas Project. See Plaintiffs' Exhibits V-1 (Desolation Flats DEIS, Chp 4) and V-2 ("Technical Support Document," Appendix B, Permitted Sources).

2. U means unreported on EPA's AIRS website.

3. NA means not available.

4. Facilities and emissions reported by EPA in the US EPA's AIRS Data website at <http://www.epa.gov/air/data/>. On the AIRS website, click on "Reports and Maps," then "Select geographic area," then in the "Select a state" section, click on "Montana," or other apprpriate state. Click "Go." Then click on "Facility Emissions." Select "NOx", "PM10" or "SO2" under "Pollutant Emitted".

5. Reasonably Foreseeable Future Sources as idenitified by BLM in proposed RMP. 66 Fed. Reg. 33975 (June 26, 2001). See Plaintiffs' Exhibit W.

6. Emissions for the Heskett Station are omitted because source is more than 300 KM from a Class I Area.

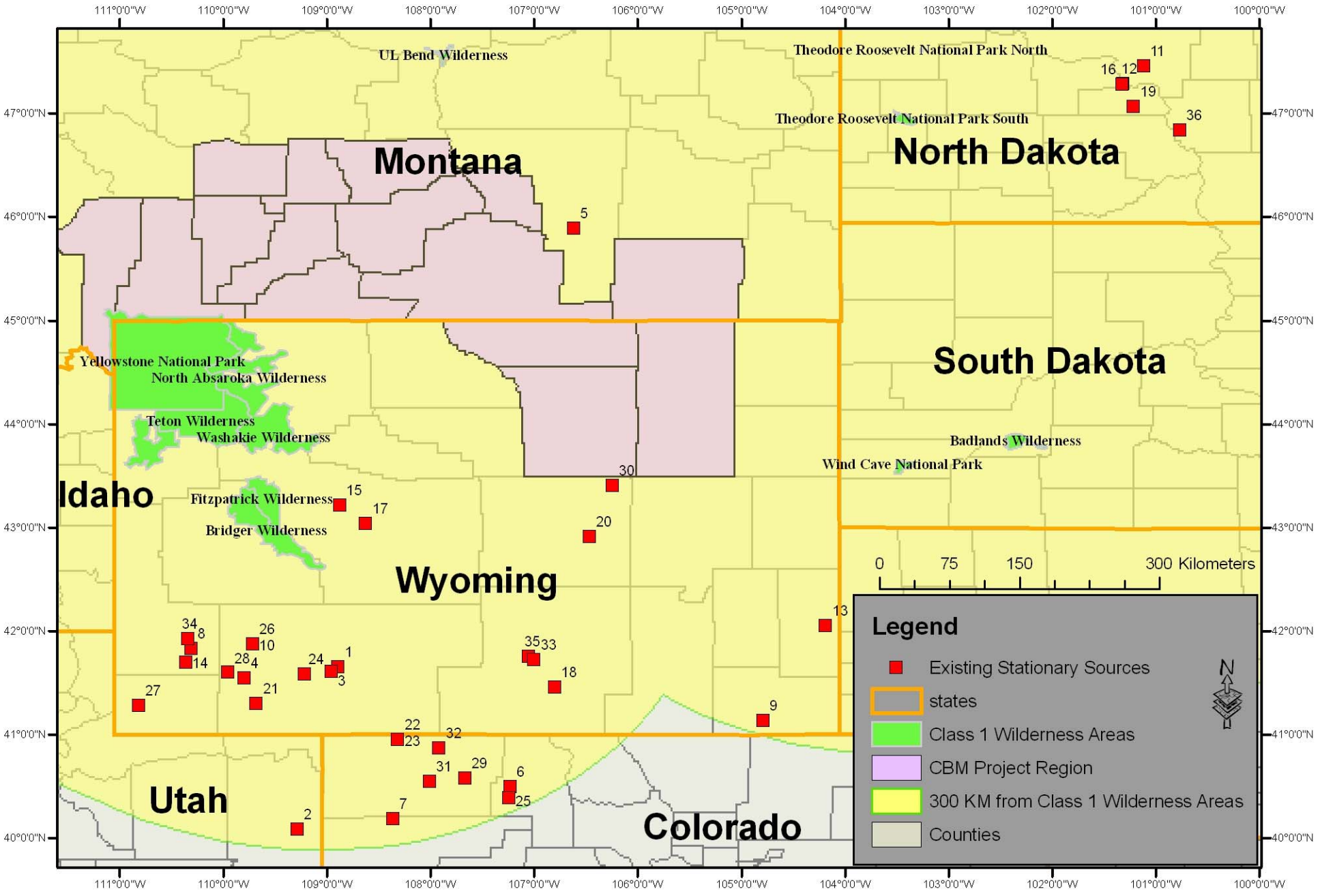
7. Facilities identified by Montana BLM in the emission inventory of the "Air Quality Technical Report, Badger Hills POD Environmental Assessment," Miles City District Office, at 31 (February 2004) as within the 300 km zone of impact of the air pollution emission on one or more of the Class I areas listed in the Plaintiffs' Amended Complaint. See id., at 5. BLM evaluated these sources for increment consumption. See id., at 24. See Plaintiffs' Exhibit X.

8. Facilities identified by WY DEQ as permitted after the baseline dates for PM10, SO2, and NOx, as noted in the May 5, 2003, “Custom Report, 37 NSR Report,” Air Quality Division, Wyoming Department of Environmental Quality (Attached to May 19,2003 Letter from Dan Olson, Wyoming DEQ, to Dan Heilig, Executive Director, Wyoming Outdoor Council). See Plaintiffs' Exhibit T.

9. Facilities identified as reasonably foreseeable future sources in BLM’s Montana “Statewide Draft Oil and Gas Environmental Impact Statement and Amendment of the Powder River and Billings Resource Management Plans,” at MIN-33 (January 2002). MT AR § VI, File A, Doc. 1.

Exhibit U-1

Major Stationary Emission Sources Omitted from Modeling Analysis of Cumulative Emissions Impacts on Class I Areas



NUMBER IN EXHIBIT P	PLOTTED on MAP Exhbit U-1 YES/NO	FACILITY NAME	LAT.	LONG.	Source Of Information For Location	Source Showing Facility Permitted After Baseline Date	Distance to Class 1 Area (KM)	Nearest Class 1 Area
1	NO	Aldila Corp	LC[1]	LC[1]	Desolation Flats EIS[9]	Desolation Flats EIS[9]		
2	1	Black Butte Coal Co_ Black Butte Mine	41.6523	-108.88942	AIRS[2]	Desolation Flats EIS[9]	105.207	Bridger Wilderness
3	NO	Blue Mountain Energy - Deserado Mine	NA[4]	NA[4]	Desolation Flats EIS[9]	Desolation Flats EIS[9]		
4	3	Bridger Coal Company - Jim Bridger Mine	41.602911	-108.95672	AIRS[2]	Desolation Flats EIS[9]	110.155	Bridger Wilderness
5	2	Bonanza Power Plant	40.0833	-109.2833	Acid Rain Program[3]	Moon Lake EIS	279.3006	Bridger Wilderness
6	4	Church & Dwight Company Incorporated	41.5449	-109.7995	AIRS[2]	Desolation Flats EIS[9]	128.4877	Bridger Wilderness
7	11	Coal Creek Station	47.454239	-101.10998	AIRS[2]	EPA TRNP Increment Study[8]	162.9861	Theodore Roosevelt National Park North
8	5	Colstrip Power Plant	45.8844 [3]	-106.6139	Acid Rain Program[3]	Increment Stu[8]	200.0003	UL Bend Wilderness
9	NO	Clear Creek Storage	LC[1]	LC[1]	Desolation Flats EIS[9]	Desolation Flats EIS[9]		

NUMBER IN EXHIBIT P	PLOTTED on MAP Exhbit U-1 YES/NO	FACILITY NAME	LAT.	LONG.	Source Of Information For Location	Source Showing Facility Permitted After Baseline Date	Distance to Class 1 Area (KM)	Nearest Class 1 Area
10	NO	Colorado Interstate Co Laramie Comp Stn	LC[1]	LC[1]	Desolation Flats EIS[9]	Desolation Flats EIS[9]		
11	35	Colorado Interstate Gas Rawlins Comp	41.75	-107.05	AIRS[2]	WY DEQ Report[7]	187.348	Bridger Wilderness
12	6	Connell Resources Inc Camilletti Pit	40.491667	-107.23	AIRS[2]	Desolation Flats EIS[9]	277.5179	Bridger Wilderness
13	30	DOE BLM	43.399686	-106.24391	AIRS[2]	Desolation Flats EIS[9]	219.7746	Wind Cave National Park
14	NO	D.G. Huskins Construction Co. CT-1229	LC[1]	LC[1]	Desolation Flats EIS[9]	Desolation Flats EIS[9]		
15	NO	D.G. Huskins Construction Co. CT-1230	LC[1]	LC[1]	Desolation Flats EIS[9]	Desolation Flats EIS[9]		
16	7	Elam Const Incorporated Davenport Pit	40.181111	-108.35972	AIRS[2]	Desolation Flats EIS[9]	273.7722	Bridger Wilderness
17	8	Exxon - Shute Creek I	41.825744	-110.30881	AIRS[2]	WY DEQ Report[7]	120.9548	Bridger Wilderness

NUMBER IN EXHIBIT P	PLOTTED on MAP Exhbit U-1 YES/NO	FACILITY NAME	LAT.	LONG.	Source Of Information For Location	Source Showing Facility Permitted After Baseline Date	Distance to Class 1 Area (KM)	Nearest Class 1 Area
18	28	FMC Wyoming Corp _ Soda Ash Plant	41.59907	-109.95762	AIRS[2]	WY DEQ Report[7]	129.2201	Bridger Wilderness
19	9	Frontier Refining Incorporated	41.128611	-104.78639	AIRS[2]	WY DEQ Report[7]	284.7563	Wind Cave National Park
20	10	General Chemical Soda Ash Plant	41.871865	-109.71376	AIRS[2]	WY DEQ Report[7]	92.9025	Bridger Wilderness
21	12	Great River Energy Stanton Station	47.282222	-101.31472	AIRS[2]	EPA II[8]	150.9778	Theodore Roosevelt National Park North
22	13	Holly Sugar Corporation	42.049606	-104.18372	AIRS[2]	WY DEQ Report[7]	171.6312	Wind Cave National Park
23	NO	Jonah Gas Gathering CT-1422	LC[1]	LC[1]	Desolation Flats EIS[9]	Desolation Flats EIS[9]		
24	NO	Jonah Gas Gathering CT-1423	LC[1]	LC[1]	Desolation Flats EIS[9]	Desolation Flats EIS[9]		
25	14	Kern River Gas Trans. _ Muddy Creek	41.691389	-110.36194	AIRS[2]	WY DEQ Report[7]	135.8754	Bridger Wilderness
26	15	Kn Energy Inc - Sand Draw Station	43.212398	-108.87491	AIRS[2]	Desolation Flats EIS[9]	47.1019	Fitzpatrick Wilderness

NUMBER IN EXHIBIT P	PLOTTED on MAP Exhbit U-1 YES/NO	FACILITY NAME	LAT.	LONG.	Source Of Information For Location	Source Showing Facility Permitted After Baseline Date	Distance to Class 1 Area (KM)	Nearest Class 1 Area
27	16	Leland Olds Power Plant	47.281667	-101.31944	AIRS[2]	EPA TRNPk Increment Study[8]	150.6441	Theodore Roosevelt National Park North
28	17	Louisiana Land & Explor._lost Cabin	43.0373	-108.6238	AIRS[2]	WY DEQ Report[7]	54.1814	Bridger Wilderness
29	18	Louisiana Pacific Carbon CT-1122 BLM	41.455	-106.80083	AIRS[2]	Increment Stu[8]	222.6377	Bridger Wilderness
30	19	Milton R Young Station	47.066389	-101.21306	AIRS[2]	EPA TRNPk Increment Study[8]	161.3421	Theodore Roosevelt National Park South
31	NO	Mountain Cement Co, CT-1137	41.260384	-105.60347	AIRS[2]	WY DEQ Report[7]		
32	21	Northwest Pipeline	41.298333	-109.68139	AIRS[2]	Desolation Flats EIS[9]	150.7128	Bridger Wilderness
33	NO	Presidio Oil CT-1128 BLM	LC[1]	LC[1]	Desolation Flats EIS[9]	Desolation Flats EIS[9]		
34	23	Questar Gas Mgmt Company Pwfc Northside 1	40.945833	-108.31528	AIRS[2]	Desolation Flats EIS[9]	195.5422	Bridger Wilderness

NUMBER IN EXHIBIT P	PLOTTED on MAP EXH U-1 YES/NO	FACILITY NAME	LAT.	LONG.	Source Of Information For Location	Source Showing Facility Permitted After Baseline Date	Distance to Class 1 Area (KM)	Nearest Class 1 Area
35	22	Questar Gas Mgmt Co Pwfc Southside 2	40.945833	-108.31528	AIRS[2]	Desolation Flats EIS[9]	195.5422	Bridger Wilderness
36	NO	Questar Gas Mangement- CT-1295 BLM	LC[1]	LC[1]	Desolation Flats EIS[9]	Desolation Flats EIS[9]		

NUMBER IN EXHIBIT P	PLOTTED on MAP EXH U-1 YES/NO	FACILITY NAME	LAT.	LONG.	Source of Information For Location	Source Showing Facility Permitted After Baseline Date	Distance to Class 1 Area (KM)	Nearest Class 1 Area
37	NO	R.M. Heskett Station	46.808611	-100.78667	AIRS[2]		>300	
38	24	S F Phosphates, Inc.	41.5825	-109.2166	AIRS[2]	WY DEQ Report[7]	112.7382	Bridger Wilderness
39	26	Solvay Minerals, Inc	41.871865	-109.71376	AIRS[2]	WY DEQ Report[7]	92.9025	Bridger Wilderness
40	27	South And Jones BLM	41.277463	-110.81389	AIRS[2]	Desolation Flats EIS[9]	194.8233	Bridger Wilderness
41	NO	SRTV BLM	LC[1]	LC[1]	Desolation Flats EIS[9]	WY DEQ Report[7]		

NUMBER IN EXHIBIT P	PLOTTED on MAP EXH U-1 YES/NO	FACILITY NAME	LAT.	LONG.	Source of Information For Location	Source Showing Facility Permitted After Baseline Date	Distance to Class 1 Area (KM)	Nearest Class 1 Area
42	29	Tri State Generation Craig Power Plant	40.57784	-107.66546	AIRS[2]	??	251.1798	Bridger Wilderness
43	NO	Twentymile Coal Co	LC[1]	LC[1]	Desolation Flats EIS[9]	Desolation Flats EIS[9]		
44	NO	TotalFinaELF's TG Soda Ash BLM	LC[1]	LC[1]	Desolation Flats EIS[9]	Desolation Flats EIS[9]		
45	31	Umetco Minerals Corporation	40.543889	-108.00778	AIRS[2]	Desolation Flats EIS[9]	243.1721	Bridger Wilderness
46	32	Western Gas Resources Inc Sand Wash Station	40.8669	-107.9166	AIRS[2]	Desolation Flats EIS[9]	213.0956	Bridger Wilderness
47	NO	Western Mobile Northern Steamboat S Pit	LC[1]	LC[1]	Desolation Flats EIS[9]	Desolation Flats EIS[9]		
48	NO	Williams Field Service - Permit CT-1306	LC[1]	LC[1]	Desolation Flats EIS[9]	Desolation Flats EIS[9]		
49	NO	Williams Field Services (CT 1177)	LC[1]	LC[1]	Desolation Flats EIS[9]	Desolation Flats EIS[9]		
50	34	Williams Field Svcs_Opal Plant	41.92	-110.34	AIRS[2]	WY DEQ Report[7]	113.9645	Bridger Wilderness

NUMBER IN EXHIBIT P	PLOTTED on MAP EXH U-1 YES/NO	FACILITY NAME	LAT.	LONG.	Source of Information For Location	Source Showing Facility Permitted After Baseline Date	Distance to Class 1 Area (KM)	Nearest Class 1 Area
51	33	Williams Field Services _ Echo Springs	41.717	-106.9999	AIRS[2]	WY DEQ Report[7]	192.7879	Bridger Wilderness
52	36	Wyoming Lime Producers	46.834532	-100.76573	AIRS[2]	WY DEQ Report[7]	195.3683	Theodore Roosevelt National Park South
53	NO	Atlantic Rim CBM Project	NA[4]	NA[4]	Fed. Reg.[12]	Fed. Reg.[12]		
54	NO	Bitter Creek Pipeline's Symons Central Compressor	NA[4]	NA[4]	Badger Hills EA[4]	Badger Hills EA[4]		
55	NO	Bitter Creek Pipeline's Consul 27 Compressor	NA[4]	NA[4]	Badger Hills EA[4]	Badger Hills EA[4]		
56	NO	Basin Creek 100 MW power plant	NA[4]	NA[4]	PSD permit app July 2002	PSD permit app July 2002		
57	NO	Glacier International's 160 MW power plant	NA[4]	NA[4]	NA	NA		

NUMBER IN EXHIBIT P	PLOTTED on MAP Exhibit U-1 YES/NO	FACILITY NAME	LAT.	LONG.	Source of Information For Location	Source Showing Facility Permitted After Baseline Date	Distance to Class 1 Area (KM)	Nearest Class 1 Area
58	NO	Great Northern/Kiewit's 500 MW Eastern Montana coal-fired power plant	NA[4]	NA[4]	NA	NA		
59	20	Natrona County International Airport	42.90797 [5]	-106.4644	Desolation Flats EIS[9]	Desolation Flats EIS[9]	209.6423	Bridger Wilderness
60	NO	Nelson Refining System's	LC[1]	LC[1]	Desolation Flats EIS[9]	Desolation Flats EIS[9]		
61	NO	Two new coal mines planned for Otter Creek	NA[4]	NA[4]	MT PRB EIS [9]	MT PRB EIS [9]		
62	NO	Puron Corporation's Coal Conversion Plant	NA[4]	NA[4]	WY DEQ Report[7]	WY DEQ Report[7]		
63	25	Seneca Coal Company's Seneca II mine	40.384167	-107.24194	AIRS[2]	Desolation Flats EIS[9]	287.1696	Bridger Wilderness
64	NO	Texaco USA's Stagecoach Draw Oil and Gas	LC[1]	LC[1]	Desolation Flats EIS[9]	Desolation Flats EIS[9]		
65	NO	Tongue River Railroad	NA[4]	NA[4]	MT PRB EIS [6]	MT PRB EIS [6]		

NUMBER IN EXHIBIT P	PLOTTED on MAP EXH U-1 YES/NO	FACILITY NAME	LAT.	LONG.	Source of Information For Location	Source Showing Facility Permitted After Baseline Date	Distance to Class 1 Area (KM)	Nearest Class 1 Area
66	NO	Union Pacific Resource's Champlin Gas Plant	LC[1]	LC[1]	Desolation Flats EIS[9]	Desolation Flats EIS[9]		
67	NO	Wold Trona Company's Soda Ash plant	LC[1]	LC[1]	Desolation Flats EIS[9]	Desolation Flats EIS[9]		

NOTES

latitude and longitude coordinates. Without latitude and longitude coordinates, exact distance to nearest Class I area could not be calculated.

2. Facilities and emissions identified by EPA in the US EPA's AIRS Data website at <http://www.epa.gov/air/data/>. On the AIRS website, click on "Reports and Maps," then "Select geographic area," then in the "Select a state" section, click on "Montana," or other apprpriate state, and click on "Latitude, longitude coordinates," then click on "Generate Report."

3. Latitude and Longitude for these sources came from the U.S. EPA's Acid Rain Program Plant Location website. See <http://www.epa.gov/airmarkets/arp/plantinfo.html>.

4. Facilities identified by Montana BLM in the emission inventory of the "Air Quality Technical Report, Badger Hills POD Environmental Assessment," Miles City District Office, at 31 (February 2004) as within 300 km of one or more of the 15 Class I areas listed in the PRB EIS. See id., at 5. BLM evaluated these sources for increment consumption. See id., at 24. See Plaintiffs' Exhibit X.

5. Latitude and Longitude for this source taken from FAA information available at <http://www.airnav.com/airport/KCPR>.

6. Facilities identified as reasonably foreseeable future sources in BLM's Montana "Statewide Draft Oil and Gas Environmental Impact Statement and Amendment of the Powder River and Billings Resource Management Plans," at MIN-33 (January 2002). MT AR § VI, File A, Doc. 1.

7. Facilities identified by WY DEQ as permitted after the baseline dates for PM10, SO2, and NOx, as noted in the May 5, 2003, "Custom Report, 37 NSR Report," Air Quality Division, Wyoming Department of Environmental Quality (Attached to May 19,2003 Letter from Dan Olson, Wyoming DEQ, to Dan Heilig, Executive Director, Wyoming Outdoor Council). See Plaintiffs' Exhibit T.

8. Facilities and emissions identified by EPA as consuming increment after the baseline date in EPA's "Dispersion Modeling Analysis of PSD Class I Increment Consumption in North Dakota and Eastern Montana" (May 2003). See Plaintiffs' Exhibit S.

Technical Support Documents for Ambient Air Quality Impacts Analysis," Rawlings and Rock Springs Field Offices, at Appendix B (April 2003) as within 300 km of one or more of the 15 Class I areas listed in the PRB EIS. The Desolation Flats air assessment was tiered to the Pinedale Anticline EIS, which developed an emissions inventory for sources permitted after June 1993. See Plaintiffs' Exhibits V-1 and V-2.

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The Morning Star

NORTHERN CHEYENNE TRIBE
INCORPORATED

P.O. Box 128
LAME DEER, MONTANA 59043

- WOHEHIV -
The Morning Star

Mary Bloom
Project Manager
Bureau of Land Management
Miles City Field Office
111 Garryowen Road
Miles City, MT 59301

Re: SEIS/Amendment Comments

Dear Ms. Bloom,

This letter provides the comments of the Northern Cheyenne Tribe on the scope of the Supplemental Environmental Impact Statement and Resource Management Plan (RMP) Amendment (SEIS/Amendment) addressing coalbed methane development in the Billings and Powder River RMP Areas of Montana. We also provide comments on proposed planning criteria for the SEIS/Amendment.

As reflected in the August 5, 2005 Federal Register notice (70 Fed. Reg. 45417), the SEIS/Amendment is being pursued in accordance with an April 5, 2005, order issued by the U.S. District Court in Northern Cheyenne Tribe v. Norton, No. CV 03-78-BLG-RWA, requiring BLM to consider a phased development alternative for CBM production in the Billings and Powder River RMP Areas of Montana. The April 5, order followed a Feburary 25, 2005, decision of the same court holding that the April 2003 Final Environmental Impact Statement (FEIS) and RMP Amendment was inadequate because it did not evaluate a phased development alternative.

The Northern Cheyenne Tribe appreciates the opportunity to provide comments on the SEIS/Amendment. We are looking forward to meeting with the Bureau of Land Management (BLM) on September 7, 2005 in Lame Deer, Montana.

If you have any questions regarding this matter, please feel free to contact me at (406) 477-6284.

Sincerely,

Eugene LittleCoyote,
President,
Northern Cheyenne Tribe.

cc. file.

I. BLM's Trust Responsibility to the Tribe.

BLM, like all federal agencies, is subject to the federal trust responsibility. Seminole Nation v. United States, 316 U.S. 286, 296-97 (1942); Nance v. Environmental Protection Agency, 645 F.2d 701, 711 (9th Cir.), cert. denied, 454 U.S. 1081 (1981); Northern Cheyenne Tribe v. Hodel, 12 Ind. L. Rep. 3065, 3071 (D. Mont. 1985). "The law is 'well established that the Government in its dealings with Indian tribal property acts in a fiduciary capacity.'" Lincoln v. Vigil, 508 U.S. 182, 194 (1993) (quoting United States v. Cherokee Nation, 480 U.S. 700, 707 (1987)). Even where no formal trust has been established, a fiduciary relationship arises when the Government assumes elaborate control over property belonging to Indians. United States v. Mitchell, 463 U.S. 206, 225 (1983).

Because the Federal government exercises control over the mineral, air and water resources of the Northern Cheyenne Reservation, all of which are held in trust for the Tribe by the United States, it has an obligation to manage and protect these resources for the benefit of the Tribe and its members. In the 1926 Northern Cheyenne Allotment Act, Congress provided that the mineral resources on the Reservation were reserved for benefit of Tribe and may be leased by the Federal government with the Tribe's consent "under such rules and regulations as the Secretary of the Interior may prescribe." Northern Cheyenne Tribe v. Hollowbreast, 425 U.S. 649, 651 (1976). Likewise, Congress provided in the 1992 Northern Cheyenne Reserved Water Rights Settlement Act that the Secretary of the Interior would "administer and enforce" the Tribe's reserved water rights pending the Tribe's adoption and the Secretary's approval of a Tribal water code. Pub. L. 102-374 (Sept. 30, 1992), § 5(a).

Where such close Federal control over Reservation resources exists, the government has a strict fiduciary obligation to protect these resources and manage them in the best interests of the Tribe and its members. Mitchell, 463 U.S. at 225; Cobell v. Norton, 240 F.3d 1081, 1100 (D.C. Cir. 2001). The government may not compromise its obligation to protect the water rights and mineral resources of the Northern Cheyenne Reservation when managing its own lands and resources. See, e.g., Parravanno v. Babbitt, 70 F.3d 539, 546 (9th Cir. 1995); Joint Board of Control v. United States, 832 F.2d 1127, 1132 (9th Cir. 1987); Pyramid Lake Paiute Tribe v. Morton, 354 F. Supp. 252, 256-57 (D.D.C. 1973). This is especially true in this case where the government seeks to benefit financially, in the form of bonuses, rents and royalties, from development of federally-owned CBM resources. United States v. Creek Nation, 295 U.S. 103, 110 (1935).

Even where off-Reservation energy development would not directly physically imperil and damage the Reservation's natural resources, the courts have held that the BLM has fiduciary obligations to consider and protect Tribal socioeconomic and cultural interests jeopardized by off-Reservation federal mineral development. In Northern Cheyenne Tribe v. Hodel, 12 Ind. L. Rep. 3065, 3071 (D. Mont. 1985), the Court held:

> [T]he special relationship historically existing between the United States and the Northern Cheyenne Tribe obligated the Secretary to consider carefully the

potential impacts to the tribe resulting from the lease sale of federal coal tracts lying adjacent to or near the Northern Cheyenne Reservation. Ignoring the special needs of the tribe and treating the Northern Cheyenne like merely citizens of the affected area and reservation land like any other real estate in the decisional process leading to the sale of the Montana tracts violated this trust responsibility. Once a trust relationship is established, the Secretary is obligated, at the very least to investigate and consider the impacts of his action upon a potentially affected Indian tribe. If the result of this analysis forecasts deleterious impacts, the Secretary must consider and implement measures to mitigate these impacts if possible.

Id. at 3071.

Like off-Reservation coal development, full-scale CBM development surrounding the Reservation has the potential to result in serious cultural and socioeconomic impacts to the Tribe and its members. In addition, such development may damage the Reservation's mineral estate, air and groundwater resources, all held in trust for the Tribe. The development will also damage surface water resources and agricultural lands held in trust for the Tribe and its members. As a fiduciary with an obligation to protect the Tribe's trust assets, the BLM must do more than merely reduce or seek arrangements for post hoc compensation for the damage to trust resources, it must prevent these impacts from occurring at all.

Because none of the full-field development alternatives analyzed in the 2003 FEIS fully protected Northern Cheyenne trust assets, the Tribe advocated consideration of a phased or restricted development alternative. In Northern Cheyenne Tribe v. Norton, No. CV 03-78-BLG-RWA (Feb. 25, 2005), the court upheld the Tribe's claim that BLM violated the National Environmental Policy Act by not studying such an alternative. The Court held that NEPA required BLM to consider a phased development alternative because it was both consistent with the agency's stated purpose and need and was feasible under the circumstances. Indeed, the Court concluded, a phased development alternative would not hinder the stated goal of "minimiz[ing] the environmental and societal impacts related to CBM activities" but in fact would further this objective. Feb. 25, 2005, Order at 12-14. In its April 5, 2005, order the Court required BLM to prepare an SEIS addressing phased development of CBM resources in the Powder River and Billings RMP areas.

The Tribe believes that the forthcoming SEIS which will prepared under the Court's order provides BLM with an opportunity to better fulfill its trust responsibilities to the Tribe. The Tribe wishes to work closely with BLM in designing alternatives that will serve to prevent adverse social, economic and environmental impacts both on and off the Reservation.

II. Phased Development Alternatives.

The Tribe has urged BLM to examine phased CBM development because regulation of the timing and location of CBM development is an important method of reducing the adverse socio-economic and environmental impacts of such development. Three types of phased development were briefly discussed in the 2003 FEIS:

First, the number of rigs in the emphasis area could be controlled and leases would be developed in stages. Second, the companies would be allowed to develop production in one geographic area at a time and when complete, move to another. Lastly, corridors could be left undeveloped to allow for wildlife movement.

2003 FEIS at 2-4.

While there are many possible phased development alternatives that could be examined, all involve two types of restrictions: (1) restrictions on the rate or timing of development; and (2) restrictions on the location of development. Each of these types of restrictions should be carefully evaluated in developing a range of phased development alternatives for analysis in the SEIS.

A. Restrictions on the Rate of Development.

Restrictions on the rate of development would be imposed to reduce the regional or cumulative social, economic, cultural and environmental effects of CBM development. Examples of these cumulative or regional impacts would include the added burdens to Reservation services and infrastructure resulting from immigration to the region of CBM workers and their families; cumulative impacts to Reservation air quality resulting from the cumulative impact of many CBM wells and compressor stations, and the effects on water quality from direct discharge, land application sites and infiltration ponds.

The Tribe suggests that BLM evaluate the environmental impacts of restrictions on the rate of development under three scenarios – high, medium and low. Under the high development scenario, BLM would limit approval of CBM development to a total of 500 wells per year (federal, state and private). This is equal to the level of development provided for in the court's interim injunction and is more than twice the number of wells previously permitted in any year. Under the medium development scenario, BLM would limit approval to 350 wells per year, and under the low development scenario, 200 wells per year.

B. Restrictions on the Location of Development.

Restrictions on the location of development would be imposed to avoid or mitigate the impacts of CBM development that are associated with particular geographic areas. Examples of these impacts would include the effects on Reservation groundwater and methane reserves, impacts to critical wildlife habitat and migration corridors, and effects on important cultural resources.

The Tribe has previously proposed area restrictions designed to prevent impacts to Reservation groundwater and methane reserves. Under these restrictions a buffer zone would be established around the Reservation. Development within the buffer zone would only proceed after it could be shown through pump tests or other equivalent means that Reservation

groundwater or methane reserves would not be affected. The Tribe originally proposed a buffer zone of 14 miles, which corresponds with the maximum extent of significant groundwater drawdown based on two dimensional groundwater modeling. Subsequent three dimensional modeling suggests that significant impacts would be likely within at least four to five miles from a producing field, making this distance appropriate for a buffer zone around the reservation.

The SEIS should also evaluate restrictions on the location of CBM development to protect critical wildlife habitat, including winter range and migration corridors for deer and elk. Studies should be undertaken to determine the precise location of these areas. It is likely, however, that riparian ecosystems along the Tongue River, Rosebud Creek, Hangingwoman Creek and Otter Creek have high value as wildlife habitat, and are also important plant gathering areas for the Tribe.

The SEIS should evaluate restrictions on the location of CBM development to avoid the most important Northern Cheyenne traditional cultural properties (TCPs), including the Rosebud Battlefield, the Wolf Mountains Battlefield, off-Reservation homestead sites, important hunting, fishing and gathering areas, and culturally important springs. The Tribe requests confidential consultation under Section 106 of the National Historic Preservation Act over the location of TCPs where CBM development should be prohibited or restricted.

III. Evaluation of Environmental Effects.

Once a range of phased development alternatives is selected, BLM must evaluate the environmental effects of these alternatives. While the analysis in the 2003 FEIS provides a useful starting point for this analysis, the 2003 FEIS needs to be supplemented in several areas. Indeed, the agency's consideration of phased development alternatives so thoroughly implicates the entire FEIS – particularly the evaluation and comparison of the effects of each alternative – that the Tribe believes BLM's charge on remand from the district court is more appropriately a revision of the FEIS rather than a mere "supplement" to the document. See Feb. 25, 2005, Order at 33 (describing the remand process as a "completion of a new environmental impact statement that includes a phased development alternative").

A. Social, Economic and Cultural Effects.

In Northern Cheyenne Tribe v. Hodel, 12 Ind. L. Rep. at 3074, Judge Battin held that BLM violated the federal trust responsibility by selling coal leases in Montana without adequate consideration of the lease sale's cultural, social or economic effects on the Northern Cheyenne Tribe and the Reservation and the means necessary to mitigate such effects. A subsequent court-ordered SEIS, Economic, Social and Cultural Supplement to the Powder River I Regional EIS (June 1989), found that past energy development had caused adverse social, economic and cultural impacts on the Northern Cheyenne Reservation and that the proposed coal lease sale would result in additional severe cultural, social and economic impacts to the Tribe and the Reservation.

The Tribe remains concerned that full-field CBM development in the Powder River RMP

area will lead to another "boom and bust" cycle similar to that which occurred during the 1970s coal boom. This will place added stress on the Tribe's ability to provide basic services to the Reservation community. The *hope* of obtaining employment in the CBM boom will draw Tribal members back to the Reservation, increasing demands for water, sewer and solid waste services, exacerbating an already severe housing crisis, adding to the crime problem, and increasing the demand for Tribal social services. Increases in the numbers of non-Indians passing through the Reservation will place added burdens on already substandard and underfunded Reservation law enforcement, fire protection and emergency medical services. The presence of non-Indians enjoying the wealth and income created by CBM will add to the level of social conflict, sense of deprivation and breakdown on the Reservation. Social and economic conditions on the Reservation will deteriorate as they did during the coal boom of the 1970s and early 1980s, while the rest of the region prospered. See Tribe's 2002 Narrative Report ("Narrative Report") at 3-9.

A major deficiency in the 2003 FEIS is the lack of detailed analysis of the social, economic and cultural effects of CBM development on the Reservation. The SEIS presents BLM with an excellent opportunity to rectify this substantial shortcoming.

The BLM's 1989 SEIS on the social, economic and cultural effects from off-Reservation coal development presents a good template for the type of analysis that BLM should conduct for CBM development. The 1989 SEIS contained a detailed baseline description of Reservation employment, population, income, fiscal conditions, government, housing/services/ infrastructure, social organization, social well-being, and cultural conditions. . It also provided a detailed, quantitative analysis of the impacts of the federal coal leasing program in these nine areas. Finally, the 1989 SEIS evaluated a "wide array" of mitigation options for addressing these impacts. The forthcoming SEIS could conduct the same kind of analysis for CBM development.

The 1989 SEIS also analyzed the cumulative impacts of federal coal leasing by developing low and high baseline scenarios which assumed different levels of non-federal coal-related development. BLM's low baseline scenario assumed no new mining for private coal between 1990 and 2005 while BLM's high baseline scenario assumed the development of several new coal mines on private lands and construction of the Tongue River Railroad. 1989 SEIS, pp. 5-6. The forthcoming SEIS should take a similar approach and evaluate cumulative impacts from the high, medium and low CBM development scenarios described above. The SEIS should also look at the added cumulative social, economic and cultural effects on the Reservation from development of the Otter Creek coal mines by the State of Montana, the State's proposal to develop a coal liquifaction facility near Ashland, and (as directed by the district court) the Tongue River Railroad.

The forthcoming SEIS, like the 1989 SEIS, should also evaluate the distribution of economic benefits from coal development and the likelihood that such benefits would flow to the Reservation in terms of employment, business activity and income. 1989 SEIS, pp. 13, 17. The SEIS should also evaluate the on- and off-Reservation population increases likely to result from CBM development under the high, medium and low development scenarios, and the burdens that such increases are likely to impose on already strained Reservation facilities and public services. The SEIS should also provide detailed, quantitative projections of the expenditures needed to

bring Tribal services up to adequate levels, assuming different levels of CBM development. *See* 1989 SEIS pp. 18, 26-28, 103-06.

The SEIS should forecast the effect that off-Reservation CBM development will have on Tribal government revenues through taxes, royalties and other payments. The SEIS should also evaluate the Tribe's ability to generate income from other sources to address the social and economic burdens that will result from off-reservation CBM development and the political and social consequences to the Tribe if it is unable to meet increased demands for services.

The SEIS should include a detailed assessment of the effect of off-Reservation CBM development on the Tribe's social organization, social well-being and culture. *See* 1989 SEIS, pp. 111-14.

Finally, the SEIS should include a detailed discussion of measures that could mitigate the adverse social, economic and cultural effects of CBM development on the Reservation. In particular, the SEIS should evaluate the efficacy of a "wide array" of mitigation measures comparable to those discussed on pages 125-41 of the 1989 SEIS for coal development.

B. Air Quality.

In 1977, the Northern Cheyenne Tribe designated its airshed as Class I, the most pristine standard available under the Clean Air Act. This redesignation is indicative of the great value placed by the Northern Cheyenne on the crystalline air quality that normally exists on the Reservation. Air quality concerns arise from the numerous disturbances to the natural ground cover from well pad construction and unpaved roads. In addition, natural gas compressors will emit pollutants during operations. The 2003 FEIS found that full field CBM development could result in violations of the Reservation's Class I increments for PM_{10} and NO$_x$. 2003 FEIS at 27.

The SEIS should examine whether restrictions on the number and location of wells, drill pads, roads and compressor stations would reduce the potential for such violations. Increment consumption forecasts should be made for the high, medium and low development scenarios discussed above.

The analysis of the potential for violations of the Reservation's Class I increments should be based on the methodology provided for by the Clean Air Act. In particular, the emissions inventory should include all sources permitted after the baseline dates, including the Colstrip #3 and #4 power plants. The FEIS included only those sources permitted after 1994. The emissions inventory and increment consumption analysis should be updated to reflect the emissions inventory and modeling work undertaken cooperatively by the Environmental Protection Agency (EPA), the Montana Department of Environmental Quality (MDEQ), and the Tribe under an MOA signed in 2004. In addition to updating the emissions inventory and modeling, the reasonably foreseeable development scenario should be expanded to include the proposed Otter Creek coal mines, the Tongue River Railroad, and a coal liquifaction facility proposed for the Ashland area.

C. Surface Water Quality.

The Northern Cheyenne Tribe has reserved rights to the waters of the Tongue River, Rosebud Creek and the Bighorn Reservoir. The Tongue River and Rosebud Creek are presently used by Tribal members to irrigate crops, including hay, alfalfa seed and corn. Although only about 1,794 acres of Reservation land are presently irrigated, as much as 10,000 acres of Reservation land along the Tongue River and Rosebud Creek are potentially irrigable if Reservation irrigation systems were fully funded and developed. Narrative Report at 6-34 to 6-35.

The Tribe's ability to put its reserved water rights to beneficial use for agricultural purposes could be severely compromised by discharges of untreated CBM production water into Rosebud Creek and the Tongue River. Assuming a SAR threshold of 2 (the limit provided for in the Tribe's surface water quality standards for the Tongue River and Rosebud Creek), very little, if any, CBM discharge can be accommodated. The Tribe is also concerned about the effects that discharges of CBM water will have on native riparian vegetation, soils, and aquatic life. The SEIS should examine whether restrictions on the number and location of wells would reduce the potential for violations of the Tribe's water quality standards, assuming that existing regulations and restrictions on the management of CBM water remain in place.

The Tribe believes that the analysis in the 2003 FEIS underestimated the potential for violations because it assumed that only direct discharges of CBM would raise the SAR and EC levels of the receiving waters. In reality, disposal of CBM water through land application disposal and surface water impoundments can have longer-term adverse effects on the quality of receiving waters that needs to be accounted for when predicting the adverse effects of CBM development on surface water quality. The SEIS should evaluate the efficacy of surface water impoundments and land application disposal in protecting surface water quality and estimate the long-term effects on surface water quality if these methods are used.

D. Groundwater and Methane Migration.

The Tribe's 2002 Narrative Report highlights the importance of groundwater resources to the Tribe and its members. The Tribe has a reserved right, recognized in the congressionally-confirmed Northern Cheyenne Water Compact, to the alluvial groundwater underlying the Reservation. Narrative Report at 6-26. The Compact does not address the Tribe's right to use the Reservation's non-alluvial groundwater. Each of the five Reservation communities (Ashland, Birney, Lame Deer, Muddy Cluster and Busby) relies on groundwater withdrawals as the sole source of water for domestic, commercial, agricultural and municipal use. Id. at 6-37. Tribal ranchers also rely on wells for domestic use and stock watering. Id. at 3-36, 6-38.

It is likely that the Tribe's use of groundwater will increase in the future as the Tribe slowly upgrades the Reservation's inadequate water infrastructure to meet community needs. See Narrative Report at 5-7 - 5-10. In addition, the Tribe may choose to use the Reservation's groundwater resources to provide for future economic development, including the development of its valuable coal reserves. Id. at 6-40.

Groundwater is also important to the Tribe because it feeds natural springs both on and off the Reservation. The Tribe's Narrative Report emphasizes the cultural importance of springs to the Northern Cheyenne. The Cheyenne believe that springs are living beings with spirits. Narrative Report at 7-12. Failure to protect culturally important springs on the Reservation from the effects of groundwater drawdown will constitute an irreversible cultural and spiritual impact to the Northern Cheyenne Tribe.

The mitigation measures proposed in the 2003 FEIS, including the two-mile buffer proposed in Alternative B, were not intended to prevent impacts to the Reservation's groundwater resources. Instead, the FEIS assumed that adverse impacts will occur to the Reservation's groundwater resources and proposed that CBM operators will somehow compensate for these impacts after the fact by "replacing" water lost from groundwater wells. 2003 FEIS at 4-70. The FEIS does not suggest what water sources would be used to replace Reservation groundwater or what financial assurances would be in place to ensure that CBM producers would actually pay for development of alternative water supplies. Such "mitigation" measures are not adequate to fulfill BLM's obligation to protect the Tribe's trust assets.

The district court's February 25, 2005, Order identified the discussion of well water mitigation agreements as an inadequacy in the FEIS. Mitigation based on "replacing" lost groundwater does not adequately protect the Tribe's existing and future uses of its water resources. The cultural and spiritual value of natural springs can never be "replaced." Furthermore, there will inevitably be time lags and uncertainties between the detection of impacts and the development of alternative water sources. During this time, entire communities may be without water. Additionally, the loss of *in-situ* groundwater resources will compromise the Tribe's ability to make more intensive use of its water resources to meet its existing needs and provide for future economic development, including potential development of its coal reserves. Narrative Report at 6-40. It is uncertain whether replacement water is available to meet existing demands, much less the demands posed by future economic development projects.

The Tribe asks BLM to consider a phased development alternative that would better protect the Tribe's water resources from drawdown. The alternative should include a buffer zone of at least four to five miles around the exterior boundaries of the reservation. This is the minimum necessary to assure that Reservation groundwater resources are not adversely affected by off-Reservation CBM development. According to the FEIS, three dimensional modeling of the East Fork of Hanging Woman Creek indicates that 20 feet of drawdown in the coal seams would extend 4 to 5 miles from a producing field. These effects of CBM development on groundwater could also result in drying up of springs fed by methane producing coal seams within this area.

CBM development should only be allowed within the buffer zone, if three-dimensional modeling specific to the hydrology of the area clearly and convincingly demonstrates that development can proceed without any impacts to Reservation aquifers. Any decision to proceed with drilling within the buffer zone would be made in consultation with the Tribe and would consider the likely cumulative impacts from State-authorized production of CBM resources associated with State and private lands. Authorization of federal CBM production within the

buffer zone will begin with those tracts farthest from the Reservation which have the least potential to affect Reservation groundwater resources.

After commencement of production, monitoring of groundwater will be expanded to verify that CBM production does not result in any drawdown of Reservation groundwater, all in consultation with the Tribe. Further details on the monitoring measures necessary to protect Reservation groundwater can be found on pages 5 and 6 of the Tribe's August 2002 Mitigation Plan.

E. Methane Drainage.

According to the FEIS, CBM production in the vicinity of the Reservation could drain the Reservation's own CBM resources:

> CBM development would threaten to drain methane resources under tribal lands in the planning area. . . . Modeling by the MBMG suggests that the hydrostatic head of a producing coal seam could be reduced sufficiently to cause methane liberation at a distance of approximately 2 miles from the edge of a producing CBM field.

2003 FEIS at 4-70.

Financial compensation for lost Reservation CBM resources is not an adequate remedy for drainage of CBM resources especially if the Tribe does not want to develop its resources. Furthermore, there may be substantial uncertainties about: the availability of such compensation; how it would be calculated; the extent to which it would also redress accompanying damage to other Tribal resources; and the commitment and capability to adequately monitor the drainage and accompanying damage to other Reservation resources and values. BLM should evaluate a phased development alternative that incorporates a buffer zone of sufficient size to prevent loss of Tribal methane resources. The four to five mile buffer zone necessary to address impacts to Reservation groundwater should be sufficient, however this question should be evaluated in more detail in the SEIS.

F. Wildlife Resources.

Populations of big game animals whose range includes the Northern Cheyenne Reservation should be considered trust resources even during seasons when these animals are found off the Reservation. The Tribe's Narrative Report discusses the economic importance of wildlife resources to the Northern Cheyenne. A survey conducted on the Reservation found that 84 percent of Tribal members hunt on the Reservation, while 30 percent hunt off the Reservation. Animals hunted include deer, elk, bear, bobcat, and coyotes as well as smaller game. Birds hunted include sage hen, grouse, quail, turkeys, and prairie chickens. Deer were the most commonly sought big game and pheasants the most commonly sought bird. Narrative Report at 3-38.

The 2003 FEIS concludes that "virtually every wildlife species that occurs within CBM development areas would be impacted to some degree" by CBM development, including big game animals such as deer, elk and antelope. See 2003 FEIS at 4-172. Notably, the FEIS forecast significant impacts to wildlife even under Alternative B, an alternative that was purportedly designed to "emphasize[]" protection of wildlife resources. The FEIS concludes that full-field CBM development near the borders of the Reservation would disrupt migratory pathways of some wildlife, and result in impacts from vehicular traffic, hunting and noise. Id. at 4-175. However, the FEIS contains no analysis whatsoever of the effects these impacts would have on the abundance of wildlife that Tribal members rely upon for subsistence use.

BLM should more thoroughly consider and protect wildlife resources (both on and off-Reservation) from the adverse effects of CBM development. BLM should conduct a wildlife study which assesses the likely impact of CBM development on regional wildlife populations that Tribal members depend upon as subsistence resources, and evaluates measures, such as establishing buffer zones and wildlife refuges to protect critical habitat, that will prevent and avoid significant impacts to these wildlife populations. BLM should then incorporate these measures in one or more of the phased development alternatives to be considered in the SEIS.

G. Cultural Resources.

While protection of unidentified cultural resources may occur when BLM permits site-specific CBM development projects, measures to protect traditional cultural properties (TCPs) already known to be of special importance to the Tribe should be addressed in a phased development alternative for the RMP. The Tribe proposes that buffer zones in which no CBM development would be allowed should be considered around the following sites:

1. Rosebud Battlefield and Wolf Mountains Battlefield sites. The Rosebud Battlefield is partially encompassed by Rosebud Battlefield State Park and was the site where the Northern Cheyenne and Lakota Sioux repelled an advance by army troops led by Brigadier General George Crook and forced the troops to withdraw back to Wyoming, effectively removing them from the principal war zone a week before the Battle of Little Bighorn. Both of these sites have been identified by the National Park Service (NPS) as eligible for National Historic Landmark (NHL) status. A copy of the NPS theme study evaluating these sites for NHL status is enclosed, along with the NHL applications for these sites.

2. Northern Cheyenne Homesteads. As discussed in the Tribe's Narrative Report, early Northern Cheyenne homesteads east of the Tongue River have ongoing cultural and historical significance to the Tribe. They are associated with a pivotal event in Northern Cheyenne history (establishment of the Tongue River Reservation). Further, they may be important due to their association with important individuals in Northern Cheyenne history. Many people living on the Reservation today are direct descendants of the original Tongue River homesteaders. Narrative Report at 7-21. Since current archaeological survey data is inadequate to identify all these sites, all sections where land records indicate Northern Cheyenne homesteading activity took place should be withheld from CBM exploration and development. These sections are identified in Appendix G to the Tribe's Narrative Report.

3. Significant Hunting, Fishing and Plant Gathering Areas in Tongue River Valley. As discussed in the Tribe's Narrative Report, the Northern Cheyenne value the Tongue River valley because of the vegetation and wildlife it sustains. About 57% of Birney residents and 84% of Ashland residents supplement their income by hunting, fishing and gathering wild plants and herbs. These subsistence sources remain important today. Edible plants collected along the Tongue River are listed on page 7-27 and in Appendix F of the Narrative Report. Plants of the Tongue River region are also valued by the Northern Cheyenne for their medicinal properties and are also listed on page 7-27 and Appendix F of the Narrative Report. Plants in the Tongue River valley such as cottonwood trees also have spiritual significance to the Northern Cheyenne. Big Medicine, a rare and important medicinal root, is collected along the east side of the Tongue River, as well as along Poker Jim Creek. Increasing the ease of access to the medicinal plants across from Birney and in the Poker Jim area has been a major concern for the Tribe. Narrative Report at 7-21 - 7-27. Consultation with the Tribe should begin immediately to identify specific hunting, fishing and plant gathering areas that would be protected in a phased development alternative.

4. Culturally Important Springs.

The Northern Cheyenne believe that springs, rivers, swamps and groundwater are living beings with spirits. According to the 2001 Northern Cheyenne Reservation Survey on Traditional Economy and Subsistence, over 97% of the people believe that springs have spiritual value. The Northern Cheyenne communicate with these spirits. The ongoing traditional cultural importance of these water locations can be seen in the respect shown to these location and in the offerings made at these locations. Narrative Report at 7-12. Failure to protect culturally important springs, both on and off the Reservation, will constitute an irretrievable and irreversible cultural and spiritual impact to the Northern Cheyenne Tribe. Consultation with the Tribe should begin immediately to identify cultural important springs that would be protected by a phased development alternative.

IV. Conclusion

The Tribe believes the SEIS/Amendment remand process is a an excellent opportunity for BLM to comply with its trust responsibility to the Tribe and to correct significant flaws in the 2003 FEIS. As the district court has ordered, the primary purpose of the SEIS/Amendment is to evaluate phased CBM development alternatives. The Tribe believes that such alternatives must contain two components – restrictions on the rate of development and restrictions on the location of development within the Powder River and Billings RMP areas. Moreover, restrictions on the rate of development should be evaluated under high, medium and low intensity scenarios. Both the rate and location restrictions are complementary aspects of phased development and are critical to BLM's consideration of an alternative that fulfills the 2003 FEIS' purpose and need of "minimiz[ing] the environmental and societal impacts related to CBM activities."

Once BLM has selected a range of phased development alternatives, it must compare and evaluate the effects of those alternatives on the human environment. In particular, the agency